

# CX

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*dB Technologies DVX DM28*

*Ear Monitors Australia custom moulds*

*Acoustic Technologies TH750XA*

*TC Electronics C400XL*

*DesignLED LEDAVISION screens*

**CUE03** Entertainment  
Training Resource

ISSN 1320-5595



03

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**BUSY!** PHILIPS GRABS SELECON AND DYNALITE. BLACKSHEEP HAS NOT BEEN SHORN. TRADESHOW TROUBLE IN JULY. AND L-ACOUSTICS GETS CHALLENGED BY J SERIES. THERE'S A LOT HAPPENING, AND CX IS THERE TELLING IT LIKE IT HAPPENS.

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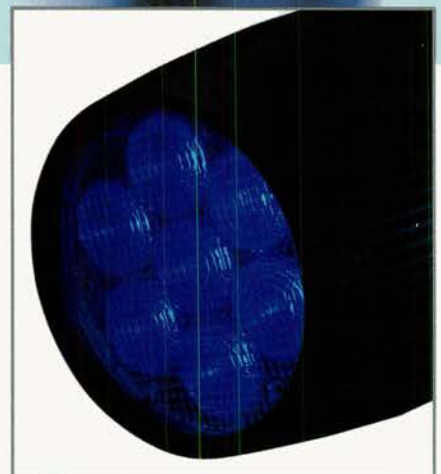
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# INSIDE THIS ISSUE

## NEWS

# 8

### SOUND RELIEF CRANKS OUT MILLIONS!



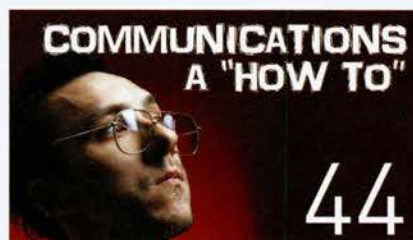
- 8 Sounc Relief cranks out millions!
- 10 Close shave but no fleecing for Blacksheep
- 12 Trade Shows – winter reckoning looms
- 14 Big audio brands battle in Australia
- 14 CORRECTION VASE not case
- 14 Bosch audio head moves up
- 16 Soundcraft add smaller digital console
- 16 Meyer announce seminar
- 16 Meyer announce audio network platform
- 18 ETC Enters LED Lighting Market
- 20 Staging Chief Talks
- 21 15 staff go as Videoplus loses Mirvac
- 21 Investec fund takes 61% of Staging Connections
- 22 HK introduces CADIS
- 23 Manantz update pro field recorder
- 24 Too Loud
- 25 Great new theatre for Tamworth

## FEATURES



### FRIENDLY OFF, YOU FREAKS, IT'S RADIAL

## HOW TO



## MEGA TEST REVIEW



## PRODUCT PREVIEW



## REGULARS

- 36 Richard Cadena
- 42 Duncan Fry
- 74 Classifieds

## WAY BACK WHEN



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- Paul Owen, Monitor Engineer, Metallica and VP & Co-owner, Thunder Audio

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Mail: Locked Bag 30, Epping NSW 1710 Australia. Call: 1-800-635 514 EMAIL: juliusmedia@me.com Web www.juliusmedia.com

Publisher, Managing Editor: Julius Grafton Editor: Andy Mackenzie EMAIL: juliusmedia@me.com call +61 2 9638-5955

Technical Advisors: James Den-Ouden, Rob Zimola Sales: Steve James EMAIL: cxmag@me.com direct +61 2 9638 5955

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## CUE03

### Entertainment Training Resource

This magazine contains much information which is a direct resource for anyone studying from the new Entertainment Training Package, named CUE03. From 2006 we will start to map certain articles direct against the relevant Unit of Competency within the package. This makes CX magazine a very cost effective resource for schools, colleges, and universities. Note that we offer a copyright release where articles in CX Magazine may be photocopied and distributed to students within an accredited course.

# EDITORIAL

## MAGAZINE MARKET HOTS UP

CX faces more competition than ever as other publishing groups muscle in on our turf and launch new magazines. There's only one industry, so why do we need magazines for each part of our industry? We tried this in 1999 with "Presentech" and gave up after five issues. We wanted to make more money at the time but came to realise money isn't everything. It was hard to decide what to put in which magazine, so the mastheads suffered.

Anyway we recently polled readers as to what they like and what they want more of in the magazine. It was great to read your responses, at presstime we have over 100 sets of comments.

I thought it would be good to share some of them here.

### YOU WANT MORE:

- Gig stories, maybe even from big past gigs, not just recent events
- Industry News
- Support and encouragement for new comers who normally start out small, so they can gain experience.
- More lighting stories, about the old days.
- Small venues and what's being done to improve them, as well as something other than Staging Connections group plummeting further into the ground. Love the editorials and the increasing IT/AV crossover too.
- More pics of setups.
- More Lighting reviews and Current Australian theatre information.
- Emerging Technology in use. Tips and Tricks with an AV/conference bias.
- Julius gig stories.
- More lighting, more production stories and more "how to do its". It would be great to not just get a piece of gear reviewed but info on who uses it, how, why/why not etc.

There were another 80 recommendations that followed the above theme.

One thing was repeated a number of times: "Less stuff about studios".



How To's, Reviews, and Production stories were up the top of the list of things people read the most. But at the very top was NEWS.

The survey is a serious thing for us - we asked 40 questions, and some were designed to really draw out any unpopular aspects of CX. So it was refreshing to get a bunch of comments like: "More of Julius spewing forth on his latest pet subject" and "I like the way Julius is not afraid the call things the way he sees them. It might get him a kick in the arse occasionally but at least we readers get a fair idea of what's happening in our industry".

"You're doing a good job. You are not afraid to confront the big issues and tell the story how it should no matter who it pisses off. I've been a reader since Connections and see no reason to not be reading CX in 20 years time. Keep up the good work."

"It is nice to see a mag with news about people in our industry. Even if you do not know them it makes you feel part of an AV community."

"I know your legal friends would love this, but more articles on safety, both in equipment and the workplace. Your earlier article on Kujo lights was 'enlightening' but the legal people took over and killed it." Believe us, that matter has not been resolved - it was all about a distributor putting pride in front of safety - and industry safety is everything at CX.

There's heaps more - but we are emboldened by your support, and fully intend to not only improve what we do, but to keep making the hard calls.

Thank you!

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# CX NEWS

## DEVICES, PEOPLE AND CONCEPTS

### SOUND RELIEF CRANKS OUT MILLIONS!



*SOUND RELIEF: two shows at one time, what a triumph! See feature on page 26.*

Australia's music industry joined forces to stage simultaneous benefit concerts for the disastrous fires in Victoria and the Queensland floods. Vendors like Jands, Johnstone Audio Services, Chameleon, Big Picture and Bytecraft all donated services charging only for labour. Bands performed free of charge.

The concerts were based on an organisational model finessed by leading promoter Michael Chugg and most recently used for Al Gore's Live Earth Concert in Sydney. Chugg has been organising benefit concerts for more than thirty years, and coerces top bands to play for free. Venues and services are donated,

while professional crew are paid a reduced rate.

The Wave Aid Tsunami relief concert organised by Chugg in 2005 saw revenue of \$2.8 million and costs of just \$600k produce a profit of \$2.3 million for victims. Had that concert been organised on commercial terms, the costs would have been \$3.5 million – resulting in a loss.

At that concert, production costs were slashed from \$354,000 down to just \$137,800 – which amounted to labor costs and trucking all of which were marked down to cost. Sound Relief follows the same philosophy, with many production suppliers donating equipment and time.

### PHILIPS MOVES TO DOMINATE ENTERTAINMENT LIGHTING

*Selecon and Dynalite join Vari\*Lite and Strand*

Dutch firm Philips Professional Lighting have moved decisively to seize leadership in the entertainment lighting markets by acquiring New Zealand luminaire makers Selecon, and Sydney architectural lighting control firm Dynalight. With the purchase of Vari\*Lite and Strand last year, Philips now control a staggering number of patents and a complementary group of innovative manufacturers, including Color Kinetics.

The price paid for the New Zealand and Australian firms was not revealed, but CX understands both Selecon and Dynalite were performing very well in their markets. Philips is likely to have paid a fair price for the privately held businesses, as neither had any particular reason to sell.

Dynalite was founded more than twenty years ago by John Gunton as a stage lighting control manufacturer. Initially struggling to compete with Strand, LSC and Jands they moved into commercial control and have kicked significant goals with their own protocols and designs worldwide.

Selecon also struggled against Strand and others slowly winning market share and now comfortably outselling Strand with luminaires. CEO Jeremy Collins told CX he plans to stay on, with the new group offering exciting opportunities. Selecon luminaires will be sold into Strand markets worldwide. "There is amazing access to LED technology", he added.

When Philips acquired Genlyte Group in November 2007 for US\$2.7 billion it got a raft of LED and conventional lighting makers, along with Vari\*Lite and Strand. Philips undertook to make no substantial changes to distribution and structure, and so far have managed the GenLyte brands well.

What happens now? Strand was once the European and Australian market leader

*Continued page 10* ▶

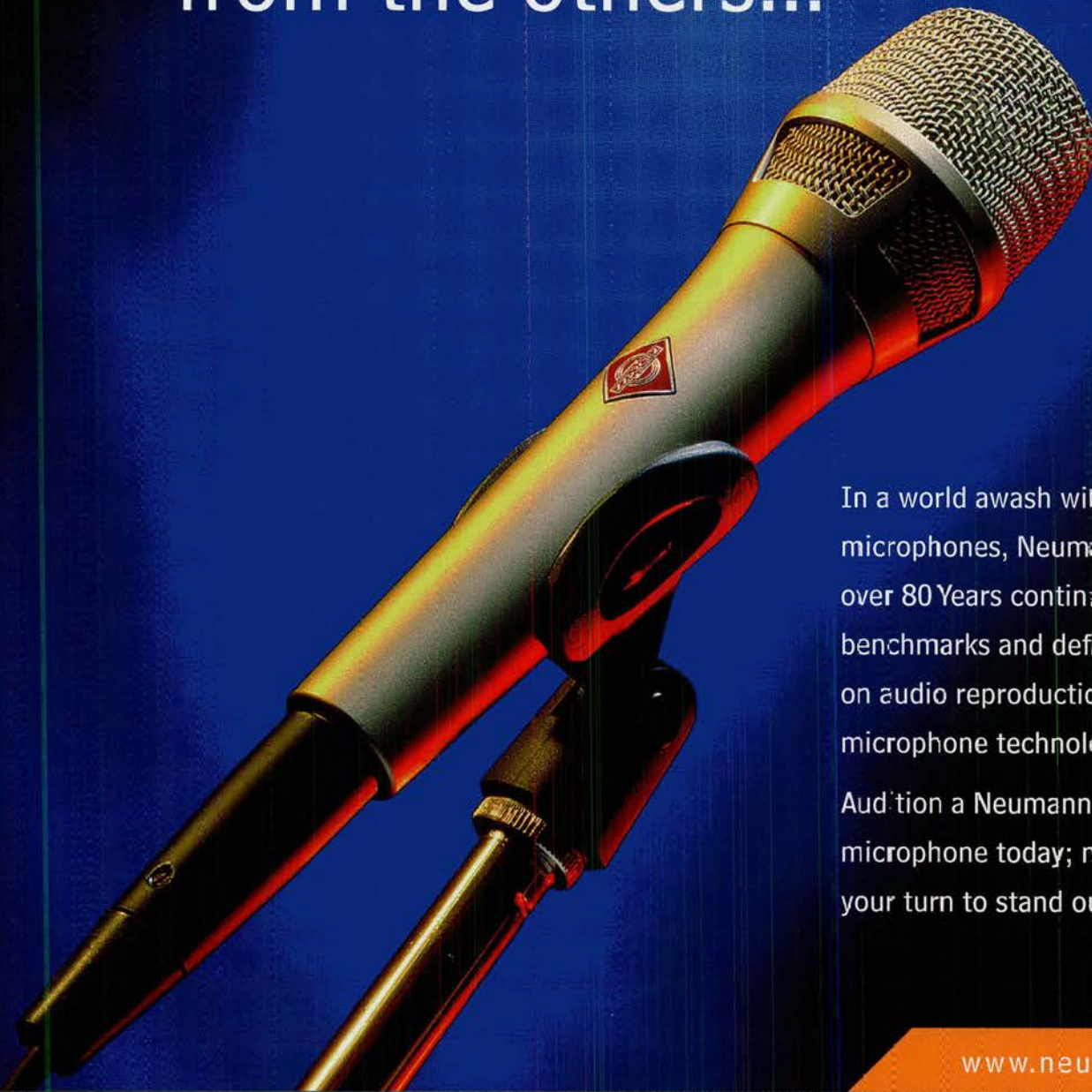


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## CLOSE SHAVE BUT NO FLEECING FOR BLACKSHEEP

For several years it's been a mystery within the trade – how can Sydney based Blacksheep Productions do so many shows in Australia and London but still be short of money? Now the story can be revealed, it was under attack from within. A near death experience over summer has seen the firm restructure after a shave with the liquidator.

The story starts with founder Ben Alcott drawn to the art of short sharp videos by his dad, who then backed the formation of the company as Ben finished school. Loans to buy expensive video equipment were guaranteed by dad. All audiovisual firms ride the roller coaster of ultra high cost when buying cameras and editing equipment – Black Sheep made a name for themselves and did good work with star clients such as Jamie Oliver. They did a lot of his work in Australia and the UK and have other blue chip clients like Westfield and Volvo.

Ben Alcott says his dad passed away suddenly from bowel cancer. Like many businesses, Black Sheep didn't have plans that provided for the passing of an underwriter like his dad. Many family members, and directors lend money into businesses without clear strategy to deal with sudden departure.

Dealing with the loss of dad, Ben Alcott now faced a mind-bending dilemma – the bank wanted the loans settled from Dad's estate and as Ben tells it, his half brothers and sisters from Dad's later marriage were not keen to back Blacksheep. Supreme Court action followed contesting aspects of the estate of which Ben was

the executor, with legal bills eventually topping \$400,000. Plus Blacksheep could not borrow or lease, so the usual pattern of renewing equipment was wrecked.

Last year the options narrowed and the firm was put into the hands of a corporate undertaker, Robert Cook, a liquidator at PPB in Sydney.

At presstime Robert Cook told CX that new owners were in possession, and that the business was running. A call to their Ultimo address revealed that company founder Ben Alcott was indeed on tour. He confirmed the story and said that placing the firm into liquidation was a blow, but that he had worked hard to minimise any losses by suppliers.

"Through all this we kept working", he told CX, "It's a new business with the same clients. Now I own half of it."

Now Blacksheep will operate under the Neon umbrella already encompassing Neon Online, Neon TV, Popcorn Taxi Events and the newly formed Neon Agency.

Managing Director Peter Taylor established Neon Pictures with producing partner Chris Murray in 2007. Taylor, a UK expat, cut his teeth developing national sales and marketing campaigns for Twentieth Century Fox before relocating to Australia to head up local distribution for Beyond Films Australia. Murray brought to the table over fifteen years experience in publishing during which time he launched Australia's Empire magazine and established himself as an international film and music commentator.



Ben Alcott.

Since Ben Alcott formed Blacksheep Video Productions in 1987 the company has expanded to encompass event and project management as well as lighting, sound and audio-visual staging.

Together Neon and Blacksheep offer the full gamut of film, television and event production services from development to post production. Based in Ultimo, the company has a fully equipped studio recently utilised by Andrew Denton's production company Zapruder's Other Films for the production of the advertising sit-com 30 Seconds as well as complete edit facilities.

Moving forward Neon and Blacksheep have numerous projects in the works. "It's been hard", says Ben Alcott, "and a shame that this has all come at the expense of my relationship with my family." **CX**

*Continued from page 8...*

in theatre luminaires, their market share has reduced every year since around the mid 1980's, when Selecon and others made inroads. Today Strand is strongest in theatre lighting control. Add in Selecon who have made strong profits building theatre lighting equipment in New Zealand and selling globally; plus Dyalite who make lighting control equipment in Sydney for installations and contracting, and you have a cohesive family. Vari\*Lite are increasing their hold on the 'smart' entertainment lighting market, and Color Kinetics own most of the patents associated with entertainment use of LED lighting.

Philips themselves make lamps for lighting – in a different division to the entertainment lighting group – so they don't need to do much beyond synergising their new lighting brands to do very well indeed. They exited professional audio some time ago, selling their brands to



Bosch.

Beyond the immediate future CX speculates ETC in the USA will continue to acquire un-associated innovators to make a solid rival to Philips, and ultimately Philips will combine its new distribution networks. They already have real estate in most markets, it makes total sense to bring all their entertainment lighting activities together. **CX**



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## TRADE SHOWS – WINTER RECKONING LOOMS

*In July three trade shows will run in Sydney, some vying for the same business. Can our industry support this given the economic downturn? What is the driver for this, and what is the likely outcome?*

A trade show is where exhibitors show the latest equipment, backed by technology experts who can assist visitors in making an informed choice about what to buy and from whom.

CX has a solid vantage point since we invented ENTECH and ran it for ten years before selling. ENTECH itself returns to Sydney next February.

In 1993 ENTECH was a good idea, there was no internet and most business communication was done by fax. Australia already had some trade shows, and the PLASA show in London was building in strength. We modelled ENTECH on PLASA but threw a lot of educational content in. At our peak we hosted 70 seminars, workshops and tours across three days.

Now we've surveyed visitors and exhibitors, and found the overwhelming majority feel the importance of trade shows has decreased over time. Exhibitors felt more strongly (54% say decreased) than visitors (37%). A lower percentage say the importance of trade shows remains the same.

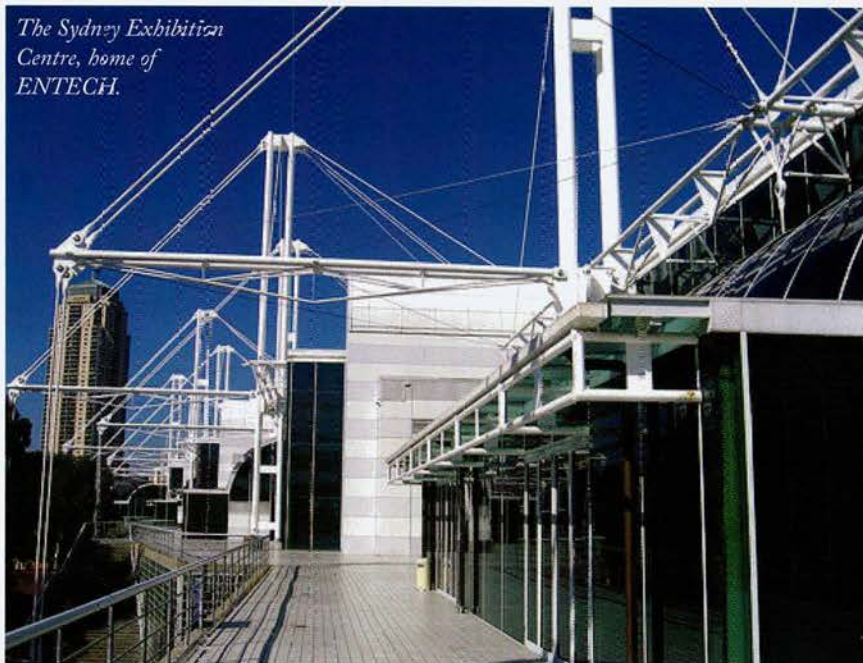
Exhibitors are nervous about the proliferation of shows. "Tradeshows have always been outrageously overpriced events", and "even in the good times we have to weigh up the enormous cost of putting on a trade show against the return." 66% of exhibitors say the cost of exhibiting at a trade show is rising faster than inflation.

Ominously 39% of exhibitors we surveyed fear that retrenchments in their organisations were possible, given the economic situation.

But the July shows, and ENTECH next February were all planned early last year, when the Australian dollar was sky high and the good times were rolling. That's when irrevocable deposits were paid to the venues. By now almost all the venue hire will have been paid. It's too late to change anything.

So why three shows in July, in the same town? Sydney is accepted as an international destination, originally ENTECH got trade delegations from Italy, UK and Germany. Those exhibitor support people need an incentive to fly here, so Sydney and its Exhibition

*The Sydney Exhibition Centre, home of ENTECH.*



Centre fitted. All these shows need strong international support from factory reps and technologists.

SMPTE always ran in July, CEDIA and Integrate (a new show) knew that. They were forced into July by venue availability, which is also why ENTECH runs in February. Integrate have sought a degree of difference by running their debut show at the excellent Playbill venues at the old Showground in Moore Park which are now branded as the Entertainment Quarter. This offers exhibitors considerably lower cost – it's much cheaper to run a show at Moore Park than at Darling Harbour where the operators charge international premiums.

Trade shows are all about money. The golden days of ENTECH saw a \$400,000 show profit for the organiser. Any of the shows in July will make money if they sell 50% of the space. Until July no one will really know what the exhibitors are doing, because there is an amazing smoke screen blowing over the whole subject and floor plans are changing every day. CX understands all the July shows have sufficient exhibitor sales to run.

Nonetheless our Zap Survey taken in April says that 30% of exhibitors have changed their plans due to the economy, and 37% plan smaller exhibits. 49% prefer Darling Harbour as a venue, followed by 21% preferring Fonebush – the Olympic site. Moore Park comes in at 17% with Brisbane and Melbourne making up the balance.

As to which of ENTECH (February) and Integrate (July) will win this battle, the numbers are mixed. In terms of trade visitors 77% of our survey takers attended

ENTECH, while 56% say they plan to visit Integrate. This should be taken with a grain of salt since we got all kinds of responses when we surveyed ENTECH visitors at the time we owned it – but they came anyway. Plus there is still time for Integrate's marketing to kick in.

The July situation is unsustainable, and the exhibitor survey shows 62% want one of the shows to defer dates until the economy improves. Another 12% say all the shows should defer this July. 87.5% say there are too many shows now in Australia, irrespective of the economic situation. "Most frustrating is the local industry group's refusal to adopt a joint tradeshow model", complains an exhibitor.

No trade show promoter will ever agree to merging unless facing the loaded gun of an exhibitor boycott. We had talks with AES and SMPTE on and off across our decade running ENTECH but all of us were just too addicted to the money to want to give any of it away. AES and SMPTE waffled about not making much money at all which was untrue.

Our ENTECH also had long and windy talks with InfoComm/ICIA that went nowhere other than producing some seminars that were not particularly popular.

But the visitors want action. "I can't believe there ever was the wealth in this sector to support shows in flashy international venues with enormous display stands and corporate razzamatazz". "For me the shows are about networking and supporting the industry". "One trade show covering all aspects of the industry would be far better".

Short term the issue is whether



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Integrate will kill ENTECH or the other way around. This will depend on whether there are enough trade visitors attending both those shows. There is no love between the two – Integrate is the product of a former ENTECH organiser who is very determined and well backed, while ENTECH is run by a professional trade show company who vow to run their show and produce more trade visitors than ever before, even going so far as to promise to share their visitor database with exhibitors – hard to imagine, given privacy laws. It's also hard to imagine what the trade visitor would think, having attended ENTECH and then having exhibitors ring them on Monday morning to try and sell them stuff.

SMPTE will continue in an old format, despite the broadcast industry having almost totally changed its complexion in the past decade. We think SMPTE has adequate support. As to CEDIA we have no real idea.

Medium term there is a strong mood

*The Hardern Pavilion, venue for Integrate.*



for change. Without a strong industry association it's most likely that market forces will eventually decide which show survives. And as to whether three shows can run in the same city in the same

month – once again, market forces will decide.

Now it all hinges on whether enough trade visitors come through the doors and spend the money needed to pay for it all. **CX**

## BIG AUDIO BRANDS BATTLE IN AUSTRALIA

*V-Dosc challenged as d&b Audiotechnik ramps up J Series*

Big live audio is a prestige market with no totally dominant player. But one of the leading brands, L-Acoustics has run head on into a challenge from German manufacturer d&b Audiotechnik. Until now L-Acoustics's V-Dosc has enjoyed a commanding lead with major touring bands and a rental network that has produced good business.

But now d&b Audiotechnik have started to eat V-Dosc's cake with their new J Series line array with several rental firms online in Australia. Largest of these is Melbourne based Johnstone Audio Services, who have toured J Series with Coldplay and The Who this summer. Ironically Johnstone Audio Services also have an arena sized V-Dosc system, but they are not listed within the worldwide

L-Acoustics Rental Network.

Also offering J Series are Sydney based Cairellie Showcraft, who have a growing inventory of J Series which they recently subhired to Jands Production Services for the Hillsong Colour Conference and Album Recording at the Sydney Entertainment Centre. Hillsong ran seven days of events across March, filling the 12,000 seat venue for each.

The other J Series users in Australia are ICS, the Brisbane based audio company from whom Cairellie in turn can source additional J Series for events like Hillsong. Between them they have fielded an arena sized J Series system.

J Series comes with one amplifier called D12. This simplifies buildup since a subwoofer or a line array box can be fired off the same kind of amp, with onboard processing.

\* Read our J Series review at *The Who*, on page 33. **CX**

## CORRECTION VASE NOT CASE



The classic backline amp line that AT Professional are reintroducing is called VASE, not Case as written in the last issue. **CX**



## BOSCH AUDIO HEAD MOVES UP

Chris Dellenty has been appointed General Manager for Bosch Security Systems, responsible for Australia and New Zealand, following the retirement of Bruce Becker.

Chris was responsible for the integration of the local Telex distribution business and staff it to the Bosch fold. This was no easy task since EV Australia and APAC Audio was and remains well entrenched as a force within a niche industry.

"Under Bruce's leadership, Bosch Security has seen enormous growth in the Australasian market, and I look forward to continuing this momentum and driving the business further", says Chris.

At presstime it appears Ian Johnstone will run the audio distribution business. **CX**



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## SOUNDCRAFT ADD SMALLER DIGITAL CONSOLE

From the Soundcraft Studer comes the Soundcraft Si2, a smaller partner to the Si3 launched only in September last year.

The Si2 comes in a smaller footprint than its bigger brother, and has 48 mic inputs mapped on 24 faders (the Si3 has 64 inputs), but this is where the differences end. The Si2, like the Si3, has four dedicated Stereo Line channels, four dedicated FX Returns from the four stereo Lexicon FX processors, 8 balanced insert sends and 8 balanced insert returns.

Si2 is complete with 24 Group/Aux buses available at all times, 8 matrix buses and a full complement of monitor talkback and main bus outputs. One of the most unique and compelling features of the Si series is that every input and output has its own dedicated input (output) socket on the back of the console.

Like the Si3, the Si2 uses a combination of rotary encoders and OLED screens on every channel so the engineer mixes at source, without recourse to a central

screen, an interface welcomed by many engineers since the console's launch last year. Four assignable on-board lexicon effect engines supplement 4 stereo inputs to provide a really powerful mix package in a width of 1.4 m.

With all input and output connections and power supply on board, the Si2 can simply drop in where an existing analogue console sits, utilising existing copper cable snakes and splitter systems.

[www.soundcraftdigital.com](http://www.soundcraftdigital.com)



## MEYER ANNOUNCE SEMINAR

Meyer Sound Australia is pleased to announce a System design and optimisation seminar to be held at Staging Connections Lilyfield in Sydney on May 4,5,6 and 7.

### THIS COURSE IS A MUST FOR ALL AUDIO PROFESSIONALS.

The four-day intensive seminar integrates course materials from several other training sessions into a single seminar that gives participants a solid working familiarity with all aspects of Meyer Sound's technology. The course builds a solid understanding of measurement, covering concepts such as FFT analysis, filters and phase relationships at an advanced level and with practical reference to use of the SIM 3 audio analyser system.

Other main topics covered include system alignment, basic array theory, applications for Meyer Sound MAPP Online, use of Meyer Sound Line drivers for optimizing performance, and an in-depth look at line array theory with specific and detailed reference to a broad spectrum of M Series array applications. Participants should bring their own Internet-ready laptop computer.

The seminar will be presented by Steve Bush, a Senior Technical Support

Representative. Steve spends his time helping customers providing phone and email support, optimizing systems, and conducting product demos. But he also loves to teach, and his extraordinary breadth of experience and an engaging presentation style make him an in-demand seminar leader. Steve brings to the classroom years of experience as a touring system tech, and a FOH mixer for "oldies" bands, large-scale corporate events, and theatrical shows. In addition he has spent time in recording studios and working for regional sound companies.

The Seminar is free, however places are strictly limited. To register please go to the EVENTS link at

[www.meyersound.com](http://www.meyersound.com)



## MEYER ANNOUNCE AUDIO NETWORK PLATFORM

Meyer Sound has announced the introduction of D-Mitri, their digital audio platform, which provides the foundation of the company's next generation of digital products. D-Mitri is a powerful network-based system that encompasses the entire audio chain from microphone input to loudspeaker output, incorporating multichannel distribution, multichannel recording and playback, and

show control automation.

Meyer Sound's LCS audio show control is renowned for the unrivalled and creative capabilities it can achieve by integrating all audio functions in one system. D-Mitri takes these unique features to the next level with pristine audio quality, Gigabit networking, enhanced configuration flexibility, as well as precise mixing and routing of matrices up to 576 x 576 channels in size via proprietary computer software, or custom third-party programs, using standard Open Sound Control (OSC) messages.

Inherently scalable to virtually any size, D-Mitri systems can be tailored to the unique requirements of theme parks, spectacle shows, theatrical productions, museums, planetariums, performing arts centers, stadiums and arenas, and retail environments.

"D-Mitri builds on years of our experience in creating uniquely flexible digital audio systems which serve applications ranging from small theatres to complex, large-scale spectacle shows," states John McMahon, Meyer Sound's executive director of digital products.

"With its combination of networking, power, and scalability, D-Mitri is a big step forward for Meyer Sound, and opens up a lot of opportunities for future product offerings."

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If you've been delaying a move to digital because of interface or operational issues, the wait is over. The Yamaha M7CL Digital Mixing Console offers professional digital console performance and features for live sound in a 32- or 48-channel system that can actually be easier to use than a conventional analogue console. It sounds great, too.



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Yamaha's Centralogic interface takes the most direct approach to giving you maximum operational ease and efficiency in a digital console. Rather than trying to simulate the feel and workflow of an analogue mixer, Centralogic goes straight to the heart of the matter, simplifying digital operation to the point where it is actually as intuitive as analogue.



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# ETC ENTERS LED LIGHTING MARKET

As Philips acquires Selecon and Dynalite, ETC are shaping up as the other major player in the global entertainment lighting scene. It looks like there will be two major groups, with a cluster of independent manufacturers outside of both.

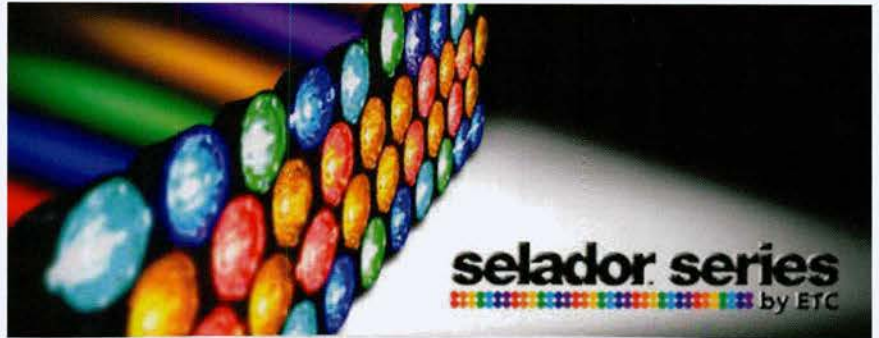
After long rumour and speculation about whether ETC would enter the LED market, the company has announced their acquisition of the Selador product line from Selador co-founders Rob Gerlach and Novella Smith.

"We didn't want to make a 'me too' RGB or RGBA product that didn't provide the kind of significant innovation in lighting we strive for," says ETC CEO Fred Foster. "With its exclusive x7 Color System™, the Selador product line produces a far superior quality of colour and light to anything that we had seen before in LEDs."

Great people were the other essential part of the equation. As ETC Marketing Manager David Lincecum explains, the company was immediately impressed not only by the innovative Selador products but by the people behind them: "When we understood how Novella and Rob had thought about the design of LED fixtures -- looking at them from a designer's point of view rather than a technologist's point of view -- we saw that these were the right people to join our efforts at ETC. We are proud to be able to take their ideas to our customer base and the greater market."

Gerlach sees ETC and Selador as an ideal match: "There are so many things we have wanted to do with our product line, and we just haven't had the resources to do it, and suddenly the capability for Selador products to fully blossom and continue to innovate and expand is much greater. The product offerings that Selador and ETC combined will bring to the marketplace are orders of magnitude more promising than anything we could have done on our own. We worked very hard to develop a line of products that are unique and an exceptional value, and I think ETC is already positioned in the same way in the marketplace. Customers recognise that ETC represents very high quality and very good value for the investment, and I think Selador perfectly aligns with that."

Selador's x7 Color System seven-hue technology produces a light and colour quality that conventional LED systems cannot duplicate. This unique colour system produces bright broad spectrum whites and intense colours equally well, rendering pigments and skin tones in a more natural way.



The Selador x7 Color System also finds its perfect counterpart in ETC's control offerings. "ETC brings to the table a unique capability to make the control of LED fixtures easier, more direct and user friendly, and that is the key to making the tool really work for the designer. We have already integrated colour matching and HSI (hue, saturation and intensity) control of Selador products into the latest software releases of our Eos® and Congo® lighting control console lines. Our architectural systems will follow shortly, and we will continue to innovate in the areas of colour management in these products," says ETC Marketing Manager David Lincecum.

Selador's line-up includes the Paletta and Lustr products, just introduced at LDI 2008. "Paletta fixtures' unique blend of seven colours of LEDs was selected to provide the depth of colour you are used to from your favourite saturated gels. The Lustr line uses a different blend of colours that are optimised for producing broad spectrum whites and tinted colours -- solving the traditional LED problem of making people look unnatural. Lustr is also ideal for studio lighting as a key or fill light and can produce the subtle, tinted colours that lighting designers value so highly," explains Smith, herself a veteran lighting designer.

At the same time that ETC is revealing this purchase of the Selador product line, they are also debuting the latest Selador product: the high-output colour-mixing Vivid LED fixture series. The Vivid series combines the Selador x7 Color System with powerful K2 emitters from Luxeon, for the highest output available. "Our new Vivid LED fixtures give you high brightness and intense coloured lighting for much longer throws, while matching and blending with gel colours and tungsten fixtures. It's the best of all worlds for many stage lighting rigs," says Gerlach.

ETC was particularly impressed by the extent to which Selador LEDs blend so seamlessly with other lighting in a rig. Says Smith, "With Selador technology,

it's hard to tell the LED light from the conventional stage lighting." Gerlach adds: "It's digital lighting that doesn't look digital. And this goes beyond just the colour-mixing. A big part of that is the control system built into the Selador fixtures -- for really butter-smooth dimming and good fade-matching to ETC Source Four fixtures and other conventional lighting equipment."

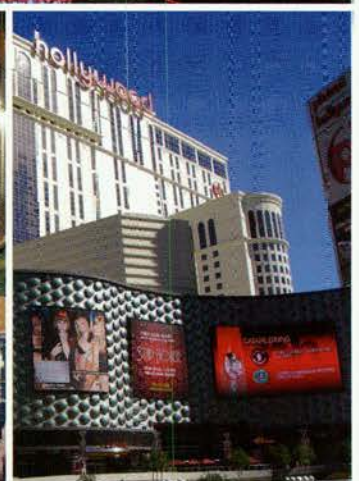
The ETC/Selador agreement means that ETC will now own, manufacture and distribute the Selador product line. Gerlach and Smith have been retained as exclusive consultants to ETC to develop more products from the line. ETC plans to dedicate a substantial portion of their R&D budgets to LED technology and the development of enhanced control and power infrastructures for LED systems. Smith says, "We're really looking forward to ETC's taking LED technology to the next level."

Selador fixtures will be sold in the U.S. immediately and are expected to be introduced in the Australian market during the second quarter of 2009.

The ETC/Selador deal also involves the licensing of the Philips Color Kinetics patent portfolio as well as other patents owned by David Cunningham. CX

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# ONE SIZE DOES NOT FIT ALL



Possible applications for LED Screens

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## STAGING CHIEF TALKS

Tony Chamberlain says he is in for the long haul, at least three years, and isn't just another suit blowing through the top job at Staging Connections. Plus he says the strength in the business is its staff, so he is on the right foot compared to many other CEO's of public companies.

Tough times are being played out for Staging and its customers, but Tony is determined to rebuild the firm as a more nimble outfit, since he says the company he inherited in October was too top heavy. "People were hopping on planes all the time, it had to stop", he says. As to the departure of former Chief Operating Officer Ben Ashton, "On day one I told him the company couldn't afford the two of us, so he knew it would come and we worked together."

"Also thank you for the pay rise", he half joked, "since I don't get as much as what you wrote". We said he was on the same deal as the guy he replaced. "Maybe you aren't the best negotiator", I replied.

Meeting the former CEO of Chubb for the first time, I garnered the impression that he isn't a head kicker. Indeed he says he gained a new appreciation of the AV industry from the inside, since he used

to do presentations all the time and was a client of the industry. "I really see it differently now, and I'm glad I wasn't rude (to the crews) when I was on the other side", he says.

According to Tony, the task ahead at Staging is no different to any other highly leveraged company, it's about doing the job better. He brought in a logistics expert to advise the group, and wasn't surprised that there was resistance at first. "But now people are saying, 'let's get his ideas', whereas before it was 'who is this guy? He isn't from inside the industry'". This jives with Tony's observation that a lot of the daily grind in events provisioning lies with getting the job done the right way, and there's too many chances to get things slightly wrong.

"We don't want to be sending away to get something we need on the job all the time. It's about how different production firms organise their warehouses and layouts". He clearly has observed some aspects of the internal workings of his firm.

"A big change has been I.T., when I got here no one trusted the I.T. solutions and now they are slightly more open". Staging had a fairly public problem with their new Oracle system which didn't deliver what was promised.

"I'm into delivering more than I

promise, which is why I have been fairly quiet up to now", he says.

Tony came to Staging from Chubb, "I wanted to work for a local board, not an American board", he says of his Chubb days. "I was over having some guy with one stamp in his passport coming in and telling me all about Australia".

In the year after Chubb, he stayed home to nurse his wife though a serious illness. It meant quality time with his seven year old daughter. "I was going to the school and teaching the kids - it was great."

As to Staging's current challenges, he says Bytecraft is a great business, "It adds a lot to what we do with producers and conference organisers".

Dubai is going well, and Staging can do better in Melbourne. The four regional managers have been reduced to two, Teresa Amey and Haig Walker. "They know what they're doing - they have a really good handle on the business."

The recent round of redundancies took its toll, "It makes me feel sick in the stomach", he says. The local managers made the choice of who was to go. "We paid them their entitlements, and hopefully we'll see some of them come back as casuals in the future", he says.

So no promises, "no spin, and no bullshit", he says.



# Norwest Productions

## EX-HIRE PRO AUDIO EQUIPMENT FOR SALE

Following the successful acquisitions by Norwest Productions Pty Limited of Oceania Audio and McLean Audio Services we have conducted a review of all our hire inventory spread over our offices in Australia, New Zealand and China. As a result we have identified inventory surplus to our current needs which we are offering for sale via our website.

Included are items from:

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- Lexicon
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- Quest
- Klark Teknik
- TC Electronics
- Schoeps
- Yamaha

Follow the link below for full details. We expect to be adding to the list as we assess further the requirements of the group so I encourage you to keep watching if you are interested.

[http://www.norwestproductions.com/exhire\\_for\\_sale.html](http://www.norwestproductions.com/exhire_for_sale.html)

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As far as Tony Chamberlain is concerned there'll always be a fleet of green trucks out there making every event as good as it can be. CX

## 15 STAFF GO AS VIDEOPLUS LOSES MIRVAC

Although not major venues, the loss of Mirvac in house hotel audio visual contracts is a blow to Sydney firm Videoplus. They said at presstime that the agreement with the Mirvac Group for the provision in house audio visual services to a number of their properties including Sebel Hotels will end from May 1.

Videoplus Group CEO Bob Dewstow acknowledged that there was an inability to find an economic model that satisfied both parties. "I got the call on April first, with a changeover on May 1, and so far no one has contacted us about a transition", he told CX.

"We were paying Mirvac 32 percent commission on gross revenues and got about \$1.2 million from the seven venues. At best it was marginal business and at worst we lost a s—tload."

8 venue crew, 4 support staff and a further 3 Videoplus staff were made redundant. "We've gone from 65 to 50 people", Bob said. "Of course I feel bad. It's been a challenge for our management team. We've discovered the emotional quotient of everyone."

Bad news comes in threes, Videoplus also has agreements with troubled venues Cyprus Lakes and Gold Coast Holiday Inn.

Bob went on to say that the Videoplus Group in house focus was more skewed to 4 and 5 star value at venues. "We could not meet Mirvac's financial expectations without compromising the quality of our product – this was something we were not prepared to do after having worked so hard to develop the product and service quality."

"We value our product and will not offer commissions to a level where we not only have an unacceptable ROI but also compromise our value model", he said.

CX understands Fairchild have won the Mirvac business for 14 venues in total.

In other news, Videoplus and Showcorp have amalgamated well, according to Bob Dewstow. CX

## INVESTEC FUND TAKES 61% OF STAGING CONNECTIONS

A recent rights issue offered five Staging Connections shares for the price of one, a move designed to generate \$10 million of working capital for the firm. Many public companies have done a rights issue like this in recent months.

At the time CX ran an opinion piece on our juliusmedia.com website and got a smoking hot letter from John Murphy, a board member of Staging Connections Ltd, Managing Director of Investec Wentworth Private Equity Limited (IWPE) and director of Investec Bank (Australia) Limited (IBAL). Our article asserted that the rights issue could deliver most of the shares in Staging to one party who would then mop up the minority shareholders and take the firm private.

Mr Murphy pointed out that our article said Investec Bank was looking to take control of Staging, whereas the entity was actually Investec Wentworth Private Equity Limited. Of course CX regrets any embarrassment caused to Investec.

Amongst all the acronyms was the fact that before the rights issue IWPE owned 18.3% of Staging Connections and via the rights issue could buy a lot more. At presstime they had 61% with a mystery buyer holding another 19%. That mystery buyer holds a blocking stake and presumably will sit steady until IWPE makes an offer. CX

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Rob Zimsla with Travers Falkiner, pictured at CX with new Grover Notting translation monitors. These are an Australian made single driver, passive box made and distributed by ATT Audio Controls. CR1 cost just \$299 a pair, and CR2 models are \$399 a pair. [www.classicaudiodesigns.com.au](http://www.classicaudiodesigns.com.au)



## HK INTRODUCES CADIS

The CADIS system is a new Installation Array from HK AUDIO, noteworthy for the ruggedness of its components. For example, the German-made mid/high unit sports a housing made of polyamide resin, an especially durable, weatherproof space-age plastic.

The passive CAD 208 mid/high unit is loaded with two 8" midrange speakers, two 1" high-frequency drivers with a concentric double horn and a 2.5-way crossover network. Since the horns have a dispersion angle of 100° x 15°, it is possible to achieve an excellent horizontal and vertical coverage pattern with just a few units.

Sonically, the CAD 208 produces a high degree of speech intelligibility

down to the last syllable, yet in spite of its compact size and low weight of barely 5.5 kg it can also be used as a full-range system for background music even without a subwoofer.

For the best possible audio performance and coverage pattern, the CAD 208 mid/high unit can also be driven in 3-way active mode with the HK AUDIO FIRNET Controller.

The subwoofer designed specifically for the system, the passive CAD 115 Sub, is loaded with a high-performance 15" neodymium loudspeaker. Other existing subwoofer models in the HK AUDIO Installation Line may be combined with the new CADIS CAD 208.

[www.hkaudio.com](http://www.hkaudio.com)



## MARANTZ UPDATE PRO FIELD RECORDER

Based on the PMC-560, the new Marantz PMD-661 Professional Field Recorder incorporates improvements. The PMD-661 is approximately 20% smaller than the PMD-660 and the 'boxy' casing of the PMD-660 has been replaced by a classy but professional outer shell.

Big enough to accommodate dual XLR microphones (both balanced) and light enough for hand-carry, the PMD-661 offers pro recording quality in literally any location. A dual concentric knob gives the user control over the level of both audio inputs, which can be fed via the built-in condenser mics or from external microphones via the XLR inputs.

Designed for critical field applications including electronic news gathering, sound capture on location and music recording, the PMD-661 Professional Field Recorder provides 24-bit, 96kHz digital.

The PMD-661 utilizes SD flash media, with cards of up to 32GB SDHC, and achieves over five hours of operation from four AA alkaline batteries.

PMD-661 sells at \$1,995.

[www.audioproducts.com.au](http://www.audioproducts.com.au)



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## TOO LOUD

CX is on a mission. We like it loud, really we do! But when is it too loud? A reader who needs to remain nameless sent us this letter recently. We think it is time to wake up some of our colleagues.....

I have been in the industry for 25 years and have played as a DJ support to most of our nations great pub rock bands.

Many venues, particularly in regional Australia, neighbour on residential areas. With this comes the sound related problems that have been menacing since the seventies and eighties when licensing decided that building next to a club meant you could complain about the noise. Right or wrong, this is the law as it stands.

I work at one of five registered clubs in my region that still provide rock bands. Just like the others, this venue has noise problems with neighbours. As a result we are limited to 100db at the back of the dance floor. This tends to keep the neighbours happy while still allowing a "reasonable" sound level. Of course we would have it louder if we could.

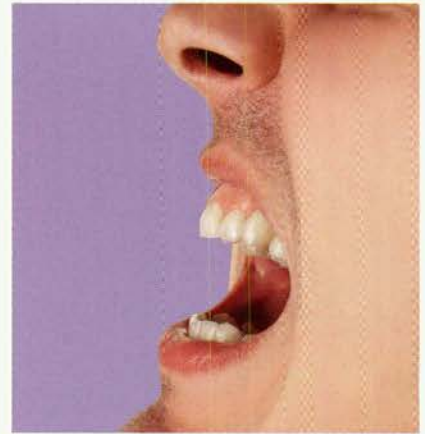
In turn, this means if we can keep our sound to that level we can keep having bands. If we can't keep it to 100 db we can't keep having rock bands.

This leads me to my point. Recently

we had one well-known Aussie rock band that certainly didn't keep to the 100db max. More like 106-108 average- that few db makes one hell of a difference on a quite night. They sounded F-ing great. But with that level came a host of complaints from a multitude of neighbours. Time and time again the sound guy at the desk was asked to turn it down as was the band manager. Things started to get heated and it was even suggested by the club management that we simply go to the amp racks and do it ourselves. (Imagine that outcome- yikes!)

Rock bands need work. The venue's need entertainment. The sound guys need work, the bar guy needs work. If enough damage is done to a venues reputation via the neighbours and licensing we will either go back to the bad old days of sound meters cutting power or simply no rock bands. The guys in the industry need to understand that for the sake of the industry as a whole, they can't just walk in and damage the good standing the venue has in the community and jeopardize the work of future acts due to their own pig headedness or some penile attachment they have to their new subs.

I have to say that most of the bands have been more than understanding of the problems venues face. But this



one particular band (who will remain nameless for now) is now "officially" a "never to return" for the club. This is sad. The band did a great job; the venue was near capacity, the crowd rocked. It was their sound guy that has now cost them at least one future gig. And have possibly affected the venues decision making for similar bands.

A point worth noting is that out of around 30 clubs and 30 pubs in this region there are currently only five clubs and two pubs that will even look at rock bands. If two of those were to close their doors to rock bands that would be a cut of in excess of 20% of the marketplace.

- CX Reader

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Photography courtesy of Rich Strode of Strode Photographic

# GREAT NEW THEATRE FOR TAMWORTH



The Capitol Theatre Tamworth is a 402 seat purpose built proscenium arch theatre which is located in the newly built Centrepoint Shopping Complex. The Theatre shares its foyer and bar facilities with Forum6 cinemas.

Theatre Consultant Richard Stuart was engaged to plan and oversee the fit-out of the theatre. With a Jands Serapid orchestra pit lift, automated winch flying system and well equipped sound and lighting rigs, the Capitol Theatre is a great new performing arts venue.

"Originally the theatre was going to be a large cinema but halfway through construction they developed the idea of making the largest cinema a live theatre," explained Richard. "Consequently the building design was put on hold for a while whilst the theatre design evolved. As the developer started to think about theatre equipment and machinery, I was brought in as Theatre Consultant for the project although the building structure was well and truly locked in design-wise."

When Richard joined the project the shell of the building was in place including pre-cast concrete slabs for the auditorium seating and his role was to firstly work with the developers to refine the design and infrastructure for live theatre use and progressively the Tamworth Regional Council.

The main issue to be addressed with this particular project was turning what was originally planned to be a large rectangular box cinema into a space

appropriate for live theatre. In creating a theatre out of the cinema, the whole cinema was raised up one floor in the building and that resulted in having an orchestra lift that could double as the loading access for the stage which is four metres above the street level to the rear of the shopping centre.

In fact beneath the theatre is a bottle shop and supermarket which ultimately determined the physical layout of the theatre building.

"This poses logistic problems with getting scenery and props into the building," said Richard. "Scenery, props and equipment are loaded in under stage level, travels through the under stage area onto the orchestra pit & lift and is then raised up onto the stage. It's all part of the unique design of the building which is essentially a major shopping centre at ground level with entertainment venues on upper levels."

Richard turned to Jands for a theatre engineering solution they delivered a design for the orchestra pit lift using four Serapid lift mechanisms resulting in – according to Richard – a very smooth operating, extremely quiet and very efficient orchestra lift.

"It works very well and everyone has been very happy with the orchestra lift," added Richard. "Jands also supplied the flying system; originally the theatre was going to have a counterweight fly system but the design didn't have any fly galleries, loading gallery or grid. Consequently I was

very concerned about the safety aspects of using counterweights in that sort of environment and so we explored the option of using a mixture of manual and motorised winches for the fly system."

Currently the theatre has a fly system of seventeen lines with structural provision made for more lines to be installed. There is a full set of traditional black legs and border masking, two sets of tabs and a cycle all on manual winches as 'set and forget' standard masking. Four Jands JLX lighting bars are on 500Kg Jands H350 pile wind electric winches.

"The JLX lighting bars are pre-wired with multicore tails and Socapex connectors with patching on the prompt side as we managed to get one small fly gallery installed during construction that allows for the lighting bars to be patched," explained Richard. "For scenery, we have four variable-speed computer-controlled Jands SP55CAC scenery batten winches and, whilst four isn't many, it's better than none. They afford great functionality and safety in the operation of the venue which we consider very important. Many shows coming through will be regional one-nighters and the scenery battens afford most of them the opportunity to quickly and easily hang up a few pieces of scenery effects."

Whilst it would have been good to use winches of one type, the tight budget dictated the final specification that includes manual pile wind winches for masking motorised pile wind winches for

the 12m long lighting bars and variable speed drum winches for the scenery battens all with appropriate safety systems and procedures in place.

As the new venue does not yet have its own dedicated technical staff (only the recently appointed director and an operations supervisor who also has to look after other Tamworth Council venues) Richard was careful to install a system that was very safe to operate whilst providing flexibility. As with most projects of this nature, the fit out budget was incredibly tight. So the primary focus was on safety and providing an infrastructure platform that would provide the essential staging, lighting and sound requirements to support local and regional touring productions, to establish the Capitol Theatre as a new theatre on the touring circuit, with capacity to expand in the future.

"The bells and whistles can be bought in later as funding permits or hired in as required for specific shows," remarked Richard. "The main driver for me is to have the infrastructure first; somewhere to access it, somewhere to hang it and somewhere to plug it!

"The Jands installation has addressed the safety requirements and logistical constraints in the Capitol Theatre



admirably and the project has benefited from Jands highly experienced engineering, design and installation teams."

The Capitol Theatre will be operated as a live theatre by Tamworth Regional Council for forty weeks per year and as Cinema 1 of the Forum 6 Cinemas for twelve weeks per year. To date the theatre and cinemas have been praised by local patrons and performers for their facilities, comfort, restaurants, bars and ease of

access from the three level undercover carpark, since the Centrepoint Shopping Centre opened in November.

The complete theatre fit out includes a full complement of black velvet masking, white cyc, lighting rig, sound system, stage manager communications CCTV and audio/visual, with full patching throughout the venue, as well as the cinema fit out, complete with 14m wide roller cinema screen in front of the proscenium.



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# SOUND RELIEF

*Industry stages sensational benefit concerts*

*Barry Cobby and Olivia  
Newton-John LIVE at  
Sound Relief*



© Photo by Frank King

It was what we do after a disaster. The music industry always kicks in to help. Way back in time promoter Michael Chugg was instrumental in staging benefit concerts for the Ash Wednesday Bush Fires, the Newcastle Earthquake and more recently the Tsunami Wave Aid concert.

"We have a success or adversity model for running these events to raise an awful lot of money for victims", said Producer Amanda Pellman. "Chugg called Mark Pope, it was a similar idea to Wave Aid and the Live Earth thing we did for Al Gore."

What happened next redefines the history of the Australian music industry, because deadly rival Michael Gudinski joined with Chugg to stage the event, which was held simultaneously in Sydney and Melbourne. "Mark and Chugg were careful not to make it Sydney centric, they reached out and called all the promoters. After a few no's, Gudinski came on board, the two Michael's got together after their acrimonious split." This was when Chugg left Frontier and set up his own shop some years back.

"It wasn't about glorifying us. It was a dream – to hold them simultaneously in the two Cricket Grounds. John Brumby got them to move to cricket out of the MCG, the first time they've ever done that."

"Gudinski got a quarter of a million (donation) from Leonard Cohen and called me just before he went on the footy show to hand it over, to ask whether he could announce the show. We had five weeks to put it together", Amanda said.

"It was a team sport, we all had different skill bases. Joe Segretto (IMC) was demonstrative in setting the lineup. His idea was to reform the impossible band lineups, Oils and Hunters. We had to have the bands, otherwise forget it. Coldplay and Kings of Leon came on board."

"Then Taylor Swift decided to stay on for a few days and play. We wanted the Live Aid type thing where Phil Collins flew from London to New York and played at both, so we had Jet and Wolfmother play both Sydney and Melbourne."

But with Midnight Oil a surprise headliner for Melbourne, requiring leader Peter Garrett to skip a few days from his day job as Environment Minister in the Australian Government, the Sydney headline act was potentially a problem. Coldplay would open in Sydney, as they had a show that night.

"Eventually I spoke to Molly" (McCrann, music industry guru) "and he said 'What about Barry Gibb?' I said 'Lovie, have another vodka' – Barry Gibb is retired. Molly rang back and within nine days we had Barry plus Olivia Newton John."

The contrast was amazing – Midnight Oil closing in Melbourne, and Barry with Olivia in Sydney. "I was standing side stage and looked over at Molly and he had tears running down his face", continued Amanda.

There were plenty of magic moments from

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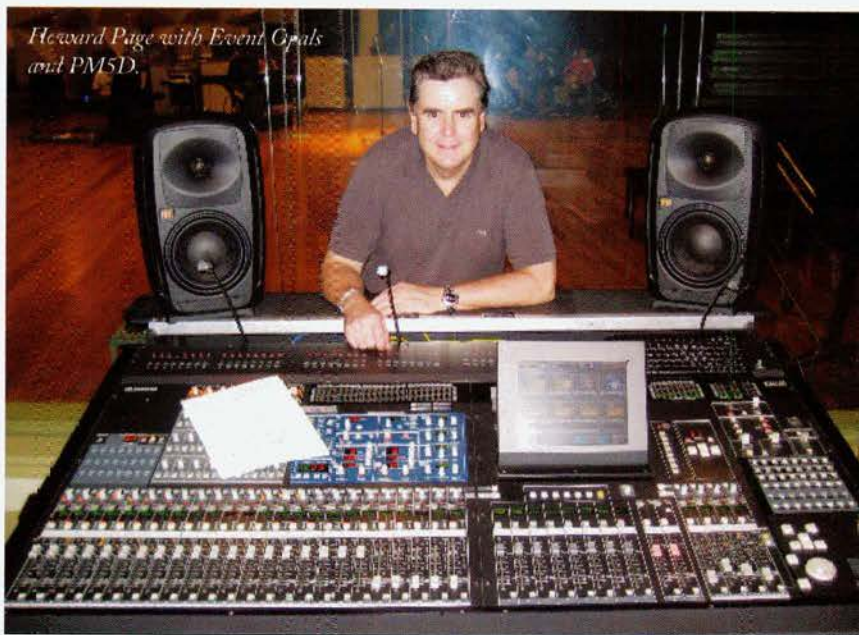
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*Arianda Peiman*



*Howard Page with Event Opal and PM5D.*

Sydney and Melbourne. Kylie came out and sang 'I still call Australia Home' all along on stage. That took courage, it went over incredibly. Jet proved they are a world class rock band, twice – once in Sydney, and again in Melbourne. And Whispering Jack came out with Chong Lim and did 'You're the Voice' backed by Coldplay. The reaction was astounding.

The nuts and bolts of staging the shows was fairly straightforward – in Sydney Janis, Chameleon and Big Picture came to the party with free production while Melbourne was a concoction of Johnstone Audio Services and Bytcraft. Stages, generators, site services and the venues were all donated. Professional crew were paid a reduced rate, in keeping with long established practice. The bands played for no fee.

There were some hurdles with rights, since XYZ Network [V] and Max channels, proposed to simultaneously televise each show on each channel. As Amada puts it, some record company people were gnarly about the rights. It panned out, with one play rights for the show day granted. "That was really difficult to put together, it was brilliantly executed by Mark Pope", she said.

Maybe there will be a DVD, that is subject to a Dutch auction at presstime.

### **BARRY GIBB AND OLIVIA NEWTON JOHN LIVE AT SOUND RELIEF**

Call it good timing, or good fortune. Barry Gibb came out of retirement to

perform at Love and Hope 2009 – a charity concert in Miami just weeks before Sound Relief. Appearing with Olivia Newton John, the set was rehearsed and went over incredibly well.

So when Molly Meldrum called about Sound Relief, it wasn't a hard decision for the eminent performer, who had vowed never to work again without his brothers. The death of Maurice Gibb in 2003 signalled the sudden end of the Bee Gees, one of the biggest names in pop music.

With little time, Gibb assembled his team – musical director Doug Emery, monitor engineer John Merchant, and Australian expatriate sound engineer Howard Page. They would pick up musicians in Australia, and rehearse them for three days before the show.

"At first I wasn't coming home, not for a forty minute set. But I've been working with Barry for a very long time. It's a lot more than sound, I look after the sensibilities on stage. It's like a security blanket for him. It's been an incredibly long and tight relationship. And he said he'd never perform again without his brothers.

"We rehearsed in Trackdown at Fox Studios", Howard told CX, "and got the band as tight as we could."

Howard took a PM5D console into another room, and mixed the band through some new Event Opal studio monitors. "I dial it all in, so when I get to the gig I just need to trick with the PA to get it all to sit right."

That approach is different to most, who use the soundcheck to try to settle all the elements. "I don't spend a lot of time on the kick drum at the gig. I spend a lot of time beforehand so I know what will come out of the mixer when we get to the gig."

At the Cricket Ground, Howard again used a pair of Opal monitors off the cue buss, for channel monitoring. They were time delayed so the main PA audio feed and the monitor feed hit Howard's ears at the same instant.

With the clock ticking, a forty minute set of eight numbers was nailed up, and the band did a rehearsal at the Sydney Cricket Ground on the day before the show. "That's the first time we saw Olivia," Howard says.

The outside broadcast sound truck was supplied and crewed from radio triple J. Howard listened to their mix of three songs after rehearsal, and suggested some changes. "They copied what I had set up, and added the audience mics. I sent them my post fade delays for Barry's voice, I've been mixing him a long time and I spun that into their mix."

On showday, the rain came down in

torrents over The Presets, who absolutely slayed the Sydney crowd. "Barry was nervous. It was a young crowd. But you can't beat words and music – they are memorable songs, all hit records", says Howard.

Introduced by a mumbling Molly Meldrum, the overture struck up and Barry Gibb walked out with his signature blue guitar. He smiled and acknowledged the crowd and started to sing 'To Love Somebody', a hit from 1967. Around about now, the young crowd could have been expected to politely turn to each other and enquire what was going on.

As the song closed, Barry stopped – and the crowd sang the next line – 'To love somebody'. "Hang on", he laughed, and then he closed the song. They were his. Later they would go off like they did for the Presets, when Barry Gibb and Olivia did 'You Should be Dancing' from 1976.

He was in perfect pitch, hit all the notes, and sounded just like The Bee Gees. All without backing tracks or tricks – just one voice, backed by Olivia on some numbers, with three excellent female backing vocalists who were plucked from the choir at Hillsong church.

It cost Barry Gibb a lot of money to

appear – it cost all the artists a lot of money to appear. No artist took a cent.

Howard Page says the organisation was superb, and that everyone on the

technical sides worked their guts out to deliver the show.

\* Rumour is Barry Gibb will perform shows in Australia next year. **CX**

## CREDITS

<b>Producers</b>	Chugg Entertainment	Michael Chugg, Amanda Pelman Matthew Lazarus-Hall
<b>Producers</b>	Mark Pope Music	Mark Pope Neha Potaila
<b>Producers</b>	IMC	Joe Segretto Tom Lang
<b>Producers</b>	Frontier Touring	Michael Gudinski Mary Bainbridge
<b>Production Providers</b>	JANDS Audio Johnston Audio Services Chameleon Lighting Bytecraft Entertainment Big Picture	Eric Robertson Nick Pitts Ian Smith Oana Gilbert Julie Ward - Zig Zag TV Cathie Scott
<b>Ferris Davies PR Frontier PR</b>		Rina Ferris and Katie Hardwick Julz de Jong, Reagan Stark, Pete Bloomfield
<b>Money Penny Accounting Services Millmaine Marketing Love Police Merchandising Hyperbole TVC Production</b>		Pete Simpson Brian Taranto Wayne Rowley Roy Andrews Michael Church XYZ Networks, Bruce Mann [V] & MAX, Shaun James Angela Beal Ashley Wawn ABC Radio/ JJJ
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# The Kings of Leon

+ The Kings of Video



When the Kings of Leon show came to town they had some pretty spectacular technical requirements. TDC rose to meet the challenge, and took some time out to tell us about how.

© Pic by Bob King

By JIMMY DEN-ouden

**T**ips for successful live production 101: Have a plan. CX went out to TDC's very nice factory in Rosebery to check out their plan for the Kings of Leon tour. Our visit was timed to coincide with the final day of testing the vision system they've constructed for this show. The vision system was there, fully built, operational, and enormous.

## RIG OVERVIEW

It's one thing to see a system like this in a venue, but when you're looking at it in a factory the sheer scale of it really hits you hard – it's big. Some 720 Barco MiTRIX panels are complemented with eight 2x1m arrays of Versatube HD. The way they were flown in the factory isn't quite the same as on the show, but it was definitely enough to show what the system could do. For the show the display devices are flown directly above the stage, with the MiTRIX wall in a "chevron" configuration with the Versatube HD staggered behind this. Since the stage area is prime real estate during bump in, speed is very much of the essence. The guys expect the LED system to be in and up inside 2 hours, which is pretty impressive. Custom frames and dolly racks have been made up for shipping and flying the panels, so the whole system is effectively modular but on a larger scale. Clever stuff.

It's one thing to have a whole lot of screen, but it becomes a lot more useful when there's something interesting to put onto it. A total of 8 cameras are fed to a Grass Valley Kayak switcher, and routed via 8 auxiliary outputs to a pair of Catalyst systems which then run the two types of screens.

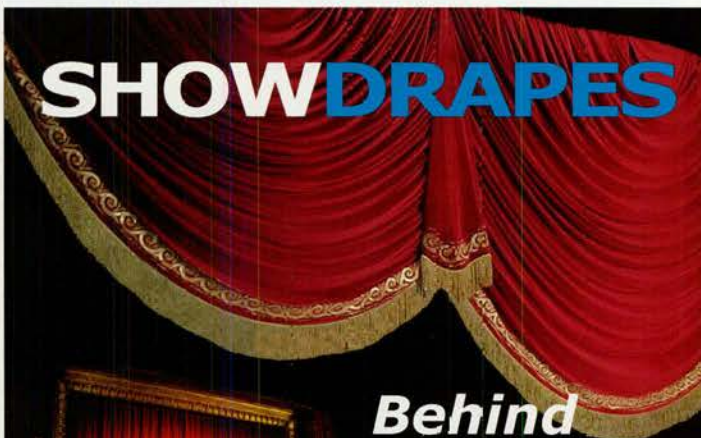
The vision system is split up between backstage and front of house and this brings with it a bunch of challenges including control and monitoring, all of which have been addressed. The factory setup reflected the way it will go into the venue – FOH separated from the technical racks. Monitoring processing is taken care of on large screen LCD displays using video quad splits – this allows the guys to have lots of images displayed on only a few screens, which means less gear and reduced setup time.

## FOH VISION OPERATIONS

I sat down with Phil and Phil (Phil?) to discuss how the video element of the show is integrated with the live performance. What really came through very strongly was the idea that vision is there to enhance the live show, not replace it. 2007 was the first time the Phils worked together to try and make the visual elements of the show more integrated with the performance, rather than just having IMAG screens hanging off the side of the stage.

They've since refined their craft to a point where they can now give the crowd the IMAG information they need, but deliver it in an artistic manner which is sympathetic to the show. Vision control is set at front of house right next to lighting, which is looked after by Ali Bale. Phil H explained that since there is enough intensity in the vision rig, it's actually possible to use it to contribute to lighting the show. He varies the intensity of the LEDs depending on whether he wants

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## WHO'S WHO?

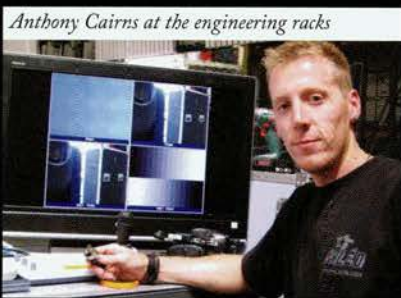
Considering the size and complexity of this vision system, it's crewed by a relatively small number of people. Here's a bit about them:



*Phil Woodhead and Phil Haynes hanging out at the office*

**Phil Woodhead** is the vision director for the show, and his role is primarily switching cameras on the Kayak switcher. He calls shots and chooses what to send out to Catalyst, and when. He started out as a camera op for motor sport and went on to directing and producing shows on extreme sports before finding his footing in music as a camera operator for the Rolling Stones. His first directing gig in music was for Texas, and since then he's done Robbie Williams, Alannis Morissette, The Chilli Peppers, and the Scissor Sisters among others.

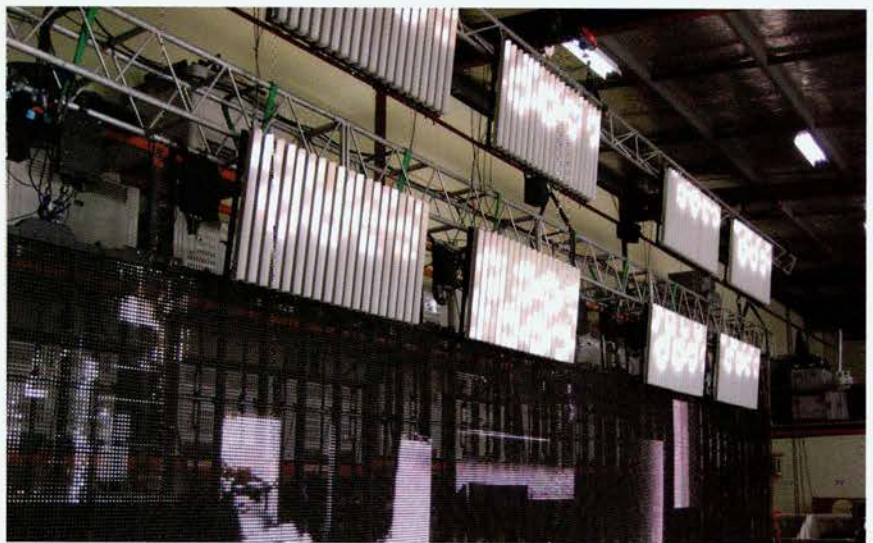
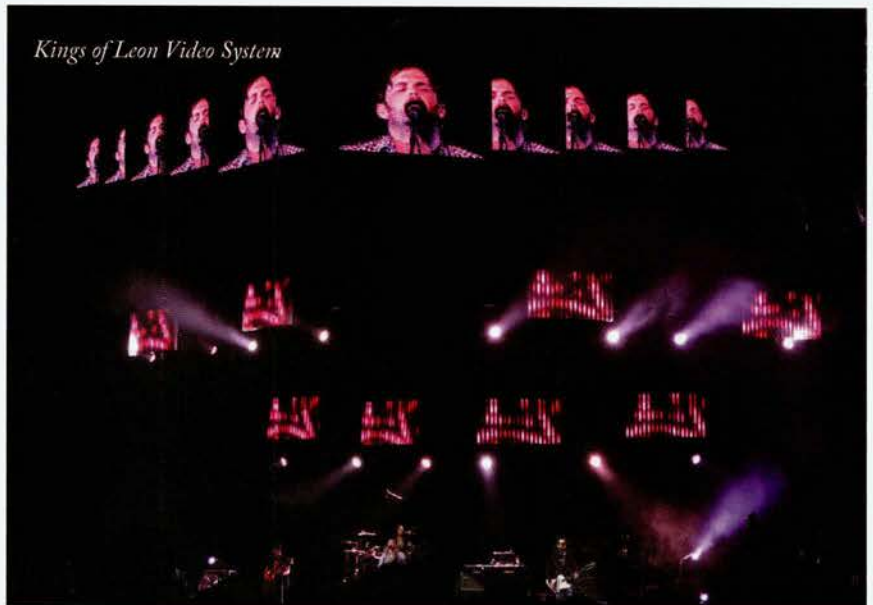
**Phil Haynes** is the visual director for the show. He drives the Catalyst systems, and controls what sources go to which parts of the display devices, as well as positioning, scaling, and masking. Phil has a long history in lighting in a bunch of different areas including theatre, music and TV. Seeing the convergence between lighting and video about 7 years back, he deviated toward the video side of things. He's since done tours for REM, stadium shows for Die Toten Hosen and is now applying lighting principles to vision for this tour.



*Anthony Cairns at the engineering racks*

**Anthony Cairns** finds himself as the crew chief & system engineer. He worked for TDC between 2003 and 2005 before heading to Europe. He's done some big tours since then, most recently 17 months as video director for Björk. He cites his most memorable gig as the Foo Fighters show in Hyde Park London - "Standing at side of stage and seeing 110,000 people watching the thing you've just spent a week building".

**Tim Jones** - Tim has been full time with TDC for 3 years and is on the tour



*Mitrix and HD Versatubes - a whole lotta LED love*

to emphasise the visuals, or back it off and let the lighting state read.

There's only one operated camera in the show - it's a long shot unit with a huge stabilised zoom lens, operated by Tim from TDC. Other cameras include Sony BRC300 hothead remote PTZ cameras, which are controlled from the backstage rack position and some very wide angle lipstick cameras. The PTZ cameras are operated by controllers which can store and recall scenes at the push of a button. This is a good thing for live shows, since there are always variables and each show will differ from the last to some extent. There is a certain level to which any operational aspect of a show can be programmed, but the impression I get is that this one works more intimately with whatever's happening on stage.

Phil W explained to me that it's really important to get the crew up to speed quickly on what happens. He relies on the camera ops to use their creativity

at times - as he points out they might see a shot he won't while watching 9 screens. At a basic level it looks good, but a system like this comes into its own after a show or two when the interactions between the crew start to become more natural. While the band and management have some basic stipulations, the system goes beyond basic IMAG and even into the abstract. Much is left up to the creative influence of the two Phils and Ali on LX to define the look of the show.

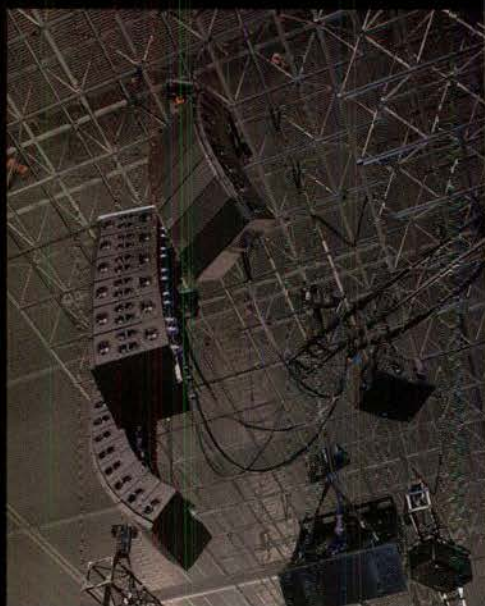
One of the distinguishing features of the vision system is the layout - it's designed to bring depth to the show and draw the audience into the performance. Another is the routing - it's basically possible to send everything to everywhere. The redundancy planning is a nice touch too. I stuck around at the factory long enough to determine that Phil and Phil have designed a system that works for them and the show, and TDC have made it happen.

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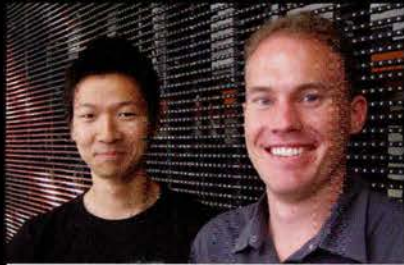
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## VISION FOR KINGS

as a LED technician, but is doing double duties as camera operator during the actual show. The standout feature of this show to him is really the size of the MiTRIX wall – "it's quite profound. We used it on Foo Fighters, but it wasn't this large".



Takao Hashino and Tim Jones in front of the MiTRIX screen – 6' at least some of the MiTRIX screen

**Takao Hashino** – Takao's on the K.O.L. tour as a LED tech for the MiTRIX system. Takao's been in Australia 8 months now, having found his job at TDC on the internet. Apparently getting the job was faster than getting the visa!

**Addam Crawford** is the HD Versatube technician on the tour. He's a freelancer, and has a lighting background.

**Toby Waley** is the project manager. He deals with band manager / production manager, and handles things up until the first production day when the crew take over. Toby came up with some tricky ideas like hanging the MiTRIX controllers above panels on par bars – meaning they go up in a third of the time. Having the controllers above the panels rather than behind also allows full use of the 55% transparency of the panels.

**Michael Hassett** is the managing director of TDC, and he's been overseeing the whole project since the start. He's kind of like human quality control (and a jolly nice chap too).



The whole show fits into 6 racks and one table backstage – with redundancy!

### SYSTEM SPECS

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- 8 Folsom ImagePro
- Avitech 4D1V Multi input SDI quad splits, 3 cascaded to allow 12 inputs
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Hothead camera with processing racks in background.

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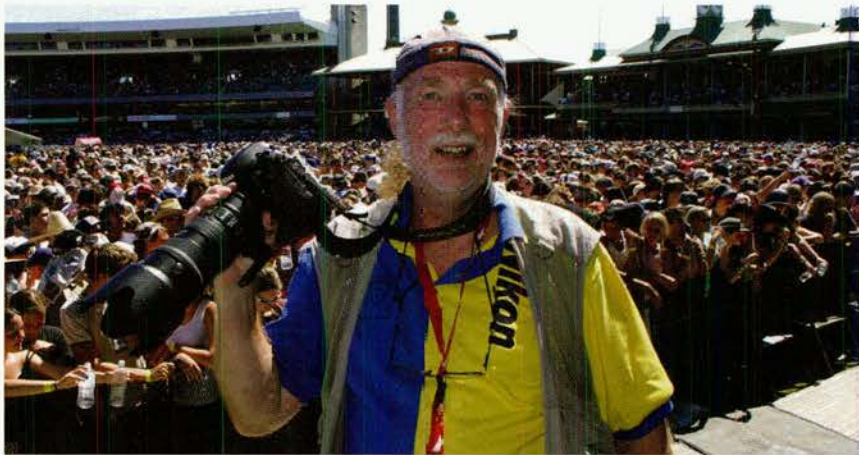
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# Rockstars and Photographers



*CX photojournalist Bob King has seen it all. We thought we had as well. Until the Kings Of Leon hit town.*

Thinking some show photos might go well with this story, we sent Bob King down to Sydney Entertainment Centre. He's been shooting shows forever, and is a landmark at major events, distinctive in height and appearance. His work is internationally renowned.

Maybe the Kings have tougher management than usual, because Bob was put through hoops to get some shots. Initially he just got a flat "No". Then after CX spoke to the publicist, we got one off rights, meaning we can use the photos in CX but nowhere else.

"We could only shoot three songs, from the pit. That's regular. Then we were told there was a marked area in yellow tape in the middle of the pit and we were not allowed there. There was a rubber mat on one side, we were not to step off it. We couldn't go any closer, or any further back".

It gets sillier. "We were marched in and told again. Stood at the side, told not to shoot until the band came on. Their security guy, a mountain of a man, was glaring at us the whole time. Then we were marched out."

At least Bob was allowed in the pit. Some shows push the photographers back to the sound desk area, where getting a shot is hard - the lens compresses everything and microphones get in the way. The pit is preferable, even if it's just for three songs.

Bob recalls the Rolling Stones as good to shoot because they orchestrate the three songs, get the lights right, and play to the photographers. Then they allow shots down the runway before throwing the snappers out.

Until now, the silliest act Bob has tried to shoot was Dixie Chicks, where they got just 40 seconds, during which each Chick sang in their own mic. As the photographers were being booted out, the three came together on one mic - the perfect shot. Which no-one got.

Sometimes there are understandable restrictions, like Bryan Adams wanting to be shot from the side without acne scarring.

"We're not paparazzi" Bob says, "I only go where I'm invited."

One ludicrous aspect of rights management is the photographers being tightly controlled while a thousand fans go nuts with their digital cameras. Or an act like Pink restricting access before doing an outdoor TV segment (CX covered this recently) without any restrictions. While the act tries to look their best in blazing early morning sunlight.

CX thinks a lot of this is just empire building by publicists and lawyers who need to create tensions and contracts to keep the money coming. Enlightened artist managers do exist - The Who have no photo contracts.

\* Bob has a new website, [www.bobking.com.au](http://www.bobking.com.au) with shots of more than 2000 artists.

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# Double Down

“Believe none of what you hear and half of what you see.” – Benjamin Franklin

By RICHARD CADENA

When I was in college, I had a crush on a pretty girl from my hometown. One evening, I looked up her number in the phone book and called. A soft, feminine voice picked up. I said hello, told her who I was, and after some small talk, I nervously asked if she would like to go to a concert. She said yes. It was music to my ears.

A few days before the show, I ran into her on campus. “I’m looking forward to the show this weekend,” I said. Came her reply; “What show?” Confused, I recounted the telephone conversation we had the week before. But she had no recollection of it. Furthermore, she said, she already had a date for the concert. The music in my ears was replaced by confused silence.

I ran back to my house and looked up the phone number again. I quickly dialed the number and another pretty, but different voice picked up. Her telephone greeting was simply three Greek letters. It was a sorority house. I had been duped. Somewhere, some sorority girl was laughing so hard that she probably split her designer jeans. Ha, ha. From that lesson I learned two things;

I’m not particularly fond of sorority humor, and you can’t always believe what you hear. To this day, I try not to take anything I hear at face value.

One of the things you often hear when lighting and video techs get together is that double stacking two video projectors doesn’t double the brightness of the display. Is that the truth or another vicious rumor started by maniacal sorority girls?

As easy as this is to prove or disprove, it’s a bit surprising that there are so many questions about this. The basic premise behind it is that footcandles are not additive. Intuitively, it goes against the most fundamental law of the universe, that energy is conserved. After all, if you stack 100 footcandles on top of 100 footcandles and you get anything but 200 footcandles, where do the missing footcandles go?

The answer is that light is additive. You can prove it by taking any two lighting instruments, measuring each one individually, and then stacking them and measuring the result. You should get the sum of the two.

As a lighting boffin, I didn’t have to think too long before concluding that the double stacking projectors should double the brightness. As a part-time imaginary scientist, I had to test my hypothesis. The only light sources to which I happen to have convenient access at the time were two Chroma-Q Color Block 2 LED heads. So I broke out my Minolta T-10 Illuminance Meter and the LED fixtures. I turned one on in full white light and focused it on the wall about 12 feet away. I measured 165 lux. I then turned that head off and checked the other; it also measured

165 lux. When I turned them both on, I reasoned, I should read 330 lux. But I was wrong! I actually measured 285 lux.

I was perplexed. So I did what any good lighting professional would do – I called someone smarter than me. Since I'm a product of the Texas public school system, I could pretty much randomly pick someone out of the phone book and they would probably be smarter than me, provided it wasn't one of my classmates. But in this case I called my friend and neighbor Mike Wood ([www.mikewoodconsulting.com](http://www.mikewoodconsulting.com)). If Mike doesn't know the answer it's probably not a solvable problem.

After a short conversation, I realized that there's a lot more going on than meets the eye (or the meter). Since LEDs are driven by pulses of current, they are constantly flashing on and off at a very high rate. Depending on the sample window of the illuminance meter, the timing of pulses, and the pulse width, the results of the meter reading will vary. If, for example, the pulses are completely out of sync with each other and the "on" times never overlap, it's possible that the illuminance would never exceed that of a single fixture. If, on the other hand, the pulses were completely synched, then the meter could read double the illuminance

of a single fixture depending on the sampling period of the meter. The odds are that the LEDs will be somewhat out of sync but the pulses would overlap to a degree, leading to a reading somewhere between that of a single fixture and twice that of a single fixture. The same holds true of discharge lamps that are powered by magnetic ballast power supplies. (Electronic power supplies have a higher frequency than the meter sampling rate and the meter is more likely to read more accurately.)

Now consider the variables in a typical video projector. An LCD projector uses a discharge lamp and a switch-mode power supply with a relatively high frequency, typically in the range of tens to hundreds of kilohertz. A DLP projector also uses a discharge lamp and a switch-mode power supply, but the DMD switches the light on and off very quickly. Now throw in the sampling window of the illuminance meter and all of these factors could result in a reading anywhere between the illuminance of a single projector to twice the illuminance of a single projector.

Perhaps a better question might be, could you even tell if a surface was lit twice as bright as another? Probably not. The human eye is a marvelously complex instrument. It sees not by absolute

measure, but by evaluating contrast.

If you stack two light sources it's very difficult to distinguish with the naked eye how much brighter it is than a single source. When I worked for a lighting manufacturer, R&D was constantly trying to squeeze more light out of new fixtures, but I could never see the 50% increases we were constantly being told about. The only way to really tell is to use an illuminance meter, and most video people (or lighting people for that matter) don't carry them around. They're not cheap, and what you see and perceive is what really matters.

What ever happened to the pretty girl? I'm glad you asked. I seldom ran into her for the rest of my college career and I never worked up the nerve to ask her out again. About ten or twelve years after we left college, I saw her at the market pushing a trolley. In the seat was a baby and following closely behind were two young sprogs. After some small talk she told me that she was happily married to a guy with whom we both went to high school and who happens to be an audio engineer. I told you she was pretty, but I never said she was smart.

Double your pleasure, double your fun. E-mail the author at [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com).



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**NEUTRIK**

# Who♂ ARE YOU?

*Old band with a new JPA*

By JULIUS GRAFTON

**E**pic English rock band The Who managed to fuse raw rock from forty years ago with brand new audio technology on their Australian tour. The sound check was interesting: 'Who Are You?' rolls out with the synth backing and a recorded chorus, then the drummer and rhythm section kick in. It sounds like The Who. Until the lead singer appears.

The guy who invented foldback is the first monitor engineer – they have several, operating two D5 Digico consoles. He is today's lead singer for soundcheck, standing bow legged, bald and bellied and grunting 'Who are you?' in monosyllabic

spoken words into the strange looking wired microphone usually used by Roger Daltry.

Transpires the band never does sound checks, so the crew do it. They get a round of applause from venue staff sometimes. It does the job, levels are set, stray noises chased down.

Then the audio crew play a CD as system tech Richie Gibson walks the Gods, those ultra high rear seats at Sydney's Acer Arena that give some people vertigo. He is listening to the high frequencies and has a few amplifier changes made on the D&B Remote control system.

This is the first time I've heard the D&B Audiotechnik's J array. At



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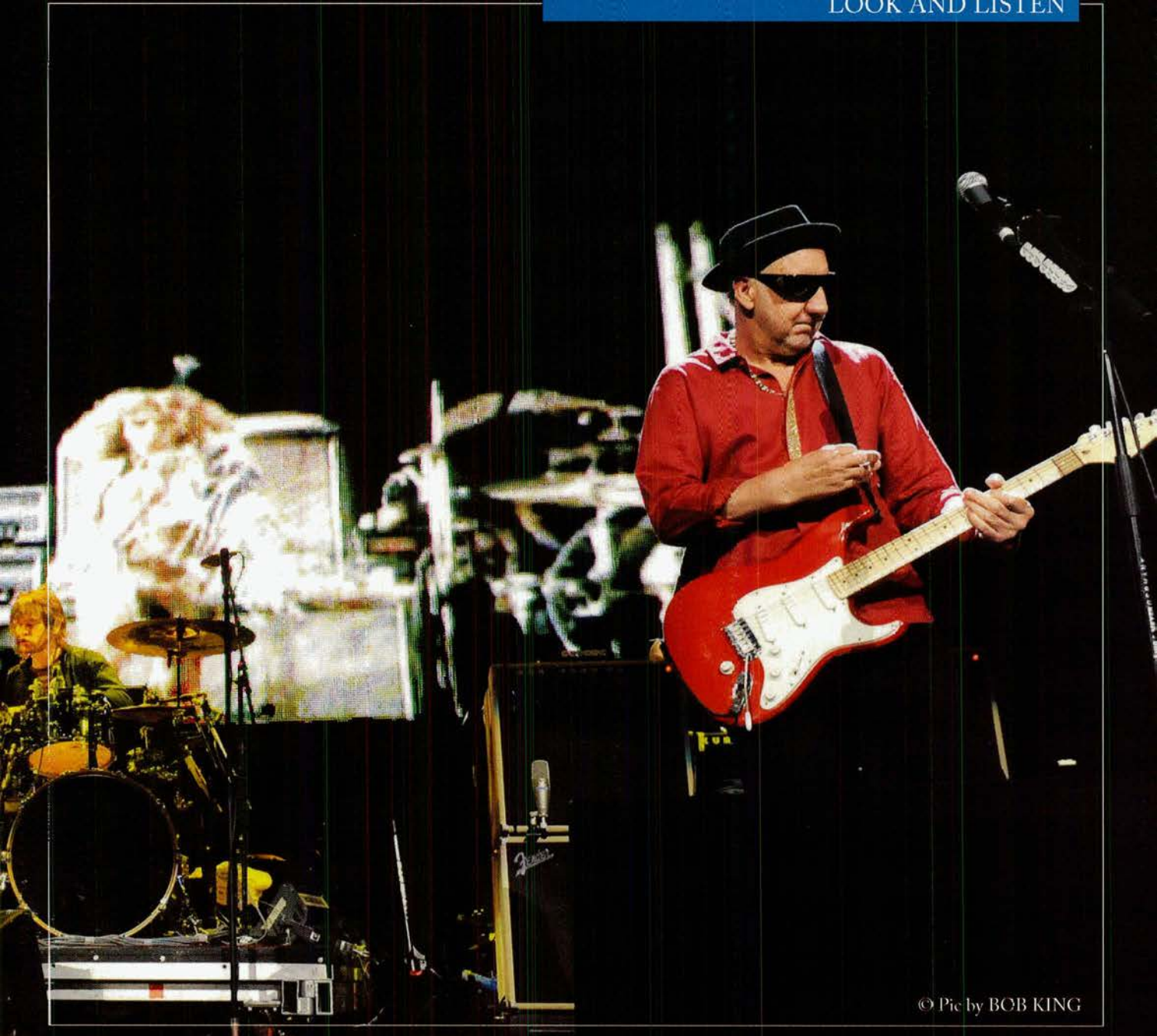


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*Glenn Richards Augie March*



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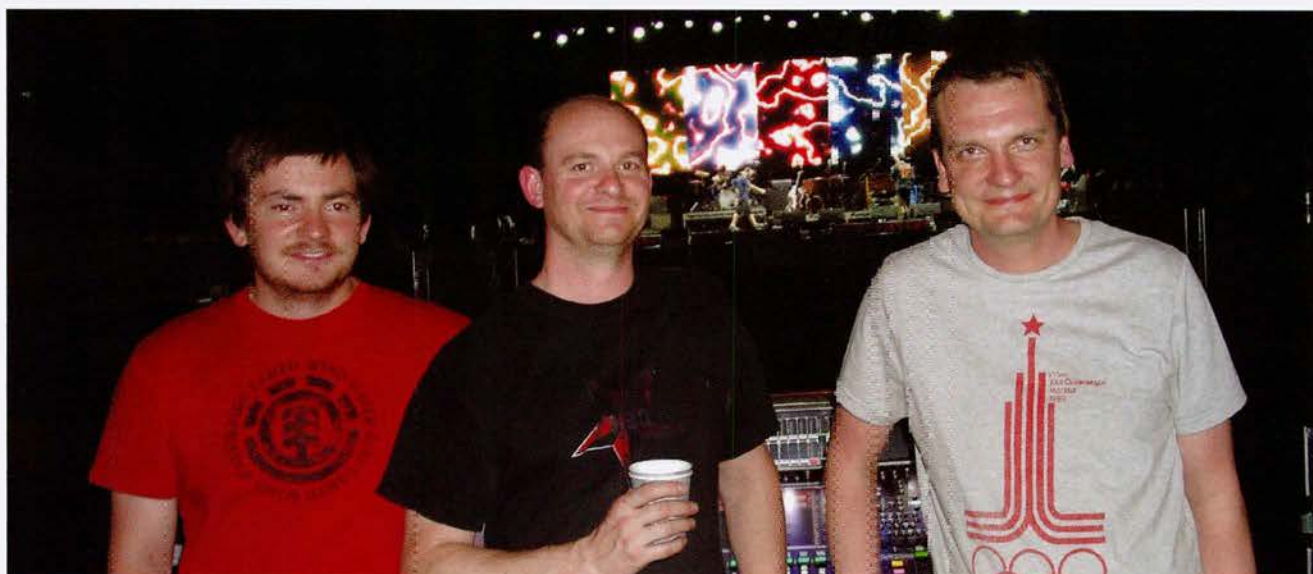


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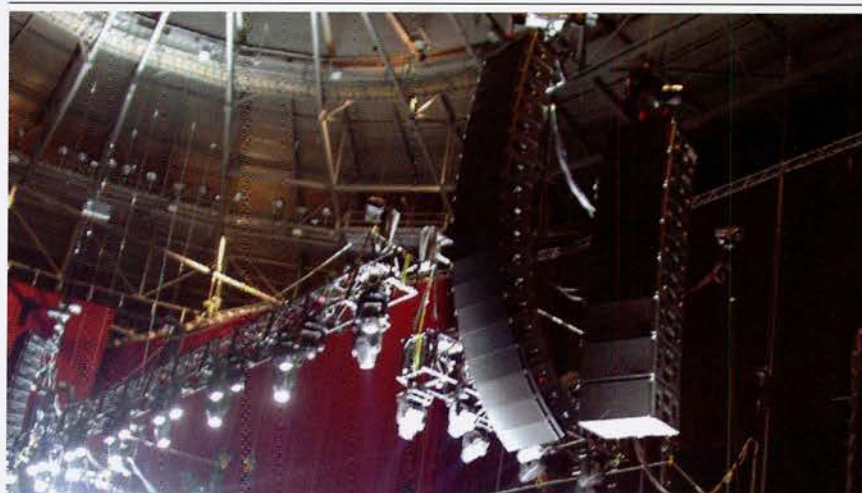
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EAR MONITORS AUSTRALIA



Craig Geraon, Richie Gibson and Paul Ramsay at The Who.



d&b J Series line array.



a&b D12 amp racks.

soundcheck it is sounding sensational, and the low end has a punch that seems smoother than others. Words are hard to find.

It's a brand new PA for Johnstone Audio Services, who also offer Vdosc, but not as an official Vdosc partner. That hasn't stopped them doing tours who specify Vdosc, but the D&B system opens a lot of new doors. JAS say that the J is highly coveted in Europe and is commanding a rental premium around the world. There's a world network evolving of J owners, including Wigwam and 8th Day Sound. Networks are the way to go where an act (like The Who, or recently Coldplay) demand J Series wherever they go.

To complete the latest, newest audio spec, the front of house guy Paul Ramsay is mixing on a new Digico SD7 console, plus the stage monitors are a mix of new D&B wedges as well.

I think numbers are starting to become less relevant in our technical reviews, ten years ago if I said the main line array

was loaded with 2 x 12" LF drivers, one hornloaded 10" MF driver and two 1.4" exit HF compression drivers then there would be some debate about whether it had enough components to work. But system design has progressed so far that it's the sum of the parts that matters, and increasingly systems come complete with amplifiers and electronics that are finessed to very fine tolerances.

In D&B's case they require that you use their processed amplifiers, so JAS have a dozen racks loaded with D12 amplifiers, which can drive any of the J series cabinets.

The main cabinet is the J8, so called since it has an 80 degree wide beam spread. The J12 is the same thing but it goes wider for downfill duties. The J Sub is loaded with 3 18" woofers, one of which faces rearwards to enable a cardioid pattern. In short this means reduced low frequency behind the box, which may be why I didn't hear so much of that characteristic boom and rumble through the millions of litres of dead and

empty air in the tall arena.

Mains draw was around 60 amps a leg (3 x 60 = 180 amps total) fed from 200 amps of 3 phase. They do that mainly because of the layout of the racks, it's easier to feed out from a 200 amp board says JAS system guy Craig Gordon.

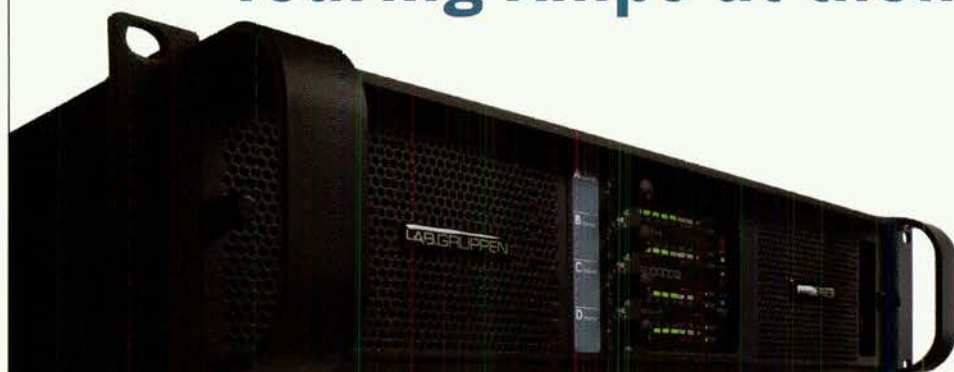
Finally, about the show. The Who are Roger Daltry and Pete Townsend who present well in front of a young band who rock. Daltry uses a mic on a cable, the strange appearance reveals itself when you get up close. What's happened is that there is half a roll of white gaff holding the XLR in the back of the Shure SM58, which Daltry swings around wildly. Always has, always will. And Townsend does the windmill thing that Tim Rodgers from You Am I imitates.

My 12 year old rotated his girl radar around the arena and declared it a chick free zone which I guess was correct from his standpoint. The chooks and old farts had a ball, it sounded absolutely enormous. It rocked.



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*For what will seem to many to be the first time ever, Duncan Fry was unable to contribute to this issue. Nothing serious, he's in Frankfurt researching the annual stream of consciousness report from MusikMesse. So we've braved the archive to bring you a little bit of history – Dunk's first story, published in Channels 12 (March '92) where he tells the tale of being...*

## DOWN BUT NOT OUT IN NEW YORK

BY DUNCAN FRY

New York (or Manhattan, to be precise) is an island city easily held to ransom by anybody – garbage companies, unions, even exhibition freight carriers, as I found out when ARX had a stand at the 1991 AES exhibition in New York. We nearly didn't!

Industry insiders may recall that at the previous AES held in New York, some experienced pro audio connoisseurs managed to walk out with a giant mixing console from a locked and guarded room. Sort of sums the place up for me, although I must say the taxi drivers I encountered were all very friendly and helpful – a big surprise! Everybody else treated you like scum!

For the show, Dave Park had built 4 super skinny display racks, put them in 2 easily transportable road cases, and sent them off via the official show carrier. At 10am the day before the show I checked with the freight company. Had my 2 cases been delivered to the Hilton for the exhibition? "Well, Mr. Fry, they are at the United Airlines terminal, but there seems to be some sort of problem with Customs". "What problem?" I asked. "I don't know, but I'll check and call you back at 12 noon."

Great. Here I am in the world's noisiest city, tired, jetlagged, no bottle of Baileys, a room on what sounded like the busiest corner on the earth,

with car horns blowing incessantly, an oppressively sticky day, and an air conditioner that easily beats the traffic for noise. The only people not to find the weather too hot are Algis and his wife, from our LA office, who are rugged up in overcoats and complaining about the cold. Californians!

12 o'clock. "We're still waiting, Mr. Fry. The trucking company has been out to the airline, but we have had to come back as your boxes weren't cleared. I'll call you when I have further news."

2 o'clock came and went, then 3, 4, 5, and then 6 o'clock. Bingo! Just as the whole of Manhattan clicks over onto overtime, miraculously my 2 road cases are cleared, ready, and already waiting at the shipping company's depot. But of course, now it's officially the weekend!

"Can they deliver the boxes tonight?"

"I'm sorry Mr. Fry, we don't do night deliveries."

"Can they deliver them first thing in the morning?"

"Oh certainly Mr. Fry, but the truckers will want a special delivery rate charged."

"How much?" I asked innocently.

"\$300 for a Saturday morning delivery to Manhattan!"

The bottom dropped out of my underwear. "How much?" I gasped. I couldn't believe it. \$300 was expensive, even for New York. I mean, they're only talking about a 10 mile round trip from their warehouse to the Hilton and back. \$300!

"Tell them to #### themselves! I'll pick it up myself."

"Pardon me, Mr. Fry?"

I repeated myself and she caught my drift. It didn't seem to bother her – this is how New Yorkers talk to each other all the time.

"Well, I guess you can pick them up, by they still want \$50 to open up the warehouse on a Saturday morning."

"What's the alternative?" I asked.

"Well they can deliver it normally on Monday sometime!"

"Great – the show finishes Monday! It's not much good to me then, is it? Tell them I'll come out and pick them up at 8:30am Saturday morning. Bye."

I sat in the hotel and fumed. These bastards really have you over a barrel. They've already picked up the stuff from the airport, so I can't go out to the airline and get it; the shipment is at their warehouse where I can only dive in and get it on their terms. I was getting a fast lesson on how things are done in New York.

Bright and early the next morning, dressed in my LA law suit (objection, your Honour) I go hail a taxi, give him the address, and off we go. A couple of blocks later he stops, and pulls out a map. Uh oh, this looks ominous. For a start, the driver is Romanian, and he appears to speak less English than I do Romanian. Secondly, he doesn't seem to have a clue where he's going! Eventually he works something out, grunts, and

off we go, driving through the most run down suburbs this side of Tijuana (But Tijuana is another story!).

We stop again, he turns the map upside down, and scratches his head. There's an old black guy sitting on a bench next to us. The driver leans out of his window. "Excuse please, where is Brewer Street?". Unfortunately he pronounced it BREE WER street. The black guy shuffles over. "Say what? Bree wer street. Hmm..." he sniffs, scratches his balls, and looks around. "Hmm, Bree wer street. Well lemme see...". While he's ruminating on all this, the taxi's meter is whizzing around like there's no tomorrow. I could be broke by the time this old bastard works out where Bree wer Street is! "Well... Bree wer street... You sho' dat's roun here?" I wound down my window before we clocked up \$20 on his Humming and Aahing. "Actually mate, he means Brewer Street." Light dawned on him "Oh, Brewer Street. Dat's the fust corner heah".

"Thank you sir" I yelled, and slapped on the driver's window "Let's go". We turned around the first corner and found the warehouse. I hopped out, told him to wait, and unbelievably he turned off the meter! He's obviously new to this game I thought. I collected the two cases, put

one in the back seat, one in the trunk, and we were off – back to Manhattan. By 9:30 we were outside the Hilton. Total taxi fare? \$45 including tip! A lot better than \$300.

As I mentioned earlier, Dave Park from ARX had carefully made these 2 cases to conform to United Parcel Services size requirements, since we would be leaving them in the States for stores to have on display, and UPS is the cheapest and most reliable method of internal shipping in the U.S.A.. By a stroke of luck they were also just half an inch narrower than the Hilton's escalators. So I put one in front of me, stepped on behind it, and pulled the second one in behind me. A neat concept, except that two thirds of the way up, I sneezed, and the second case slipped out of my hand!

Klunk – klunk – klunk it thudded back down the escalator, collecting people on the shins and ankles as it went. "Ouch – oww – shit – ouch!" they yelled as it klunked down. Luckily this guy at the bottom had a grain of sense and put his foot on it, and the case travelled back up with him. "Sorry – sorry – sorry", I said to the people following me, as they stepped off the escalator, clutching and rubbing their bruised legs and scowling



Back in the olden days, Dunk even did his own cartoons.

at me. "Thanks" I said to the guy who had stopped it with his foot!

I hastily set up everything by 10 minutes to opening time, grabbed a coffee and a sugary sticky doughnut for some energy, and the show started. I had made it and even beaten the New York system!

*\*Remember, this was 1992, and these were American dollars!*



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# COMMUNICATIONS

## A "HOW TO"

*We all know a functional comms system is one of the most important elements to a smooth show, but we don't all know just what this constitutes or how to build one. Bring on yet another insightful CX how to story.*

BY JIMMY DEN OUDEN

**H**i, science boy here. Today I'll be taking you on a guided tour of the wonderful world of communications. Please ensure your seatbelts are securely fastened, and look out the window to the left to see a lovely view of the thing I like to call purpose.

### PURPOSE AND SCOPE

The purpose of a communications system on any event is always the same: Facilitate

unimpeded communication between the people who need to speak with each other to make the show happen. Think carefully about this – too little will see your show turn clunky, but too much will elevate your costs higher than they need to be. Designing a comms system without thinking about the purpose is akin to a fleet consultant buying a building company a fleet of hatchback cars, when what they really need is buses and trucks. Trucking right along, we come to scope. The scope is defined by who the users are, and what their individual requirements happen to be – different shows will have different requirements. A high school musical will need comms between the various operators, stage manager, musical director, and possibly a few others.

An international soccer match broadcast on the other hand

will require a slightly larger system.

A good way to figure out the scope of your comms system is to make a table, listing all the people who need to use the comms system, who they need to talk to, and what type of equipment they require (matrix panel, radio headset, beltpack, squawkbox, etc...).

The first real choice to make is that of party-line versus matrix system. The winner here is the system which best suits your requirements in terms of functionality and cost.

### PARTY LINE

Party-line is when everyone can hear everyone else when they speak, and it's like there's one big party happening on the line. Commonly known as a beltpack system, this works reasonably well for small-scale productions, theatre, school shows, etc. The advantage of party-line is that it's cheap (relatively speaking), quick, and easy to deploy. A master station delivers power to the loop, and substations hang off this loop receiving and transmitting audio on a common line.

Substations are commonly known as beltpacks because they are designed to clip to the operator's belt, then have a headset with a boom mic connected. This allows the operator some freedom to move around, with the only hindrance being the cable. A "squawk box" is a different type of substation, with a speaker and microphone built in. These are useful for people like foldback operators, who need both ears and hands free but still need to be kept in the loop.

Cabling requirements are as simple as microphone leads, and the whole system can be built "daisy chain" style which almost negates the need for a design process. Almost. Party-line systems are also known as "two wire" systems, and

the master stations are available with a varied number of "loops" – commonly up to 4. You can link these loops or keep them separate, so users can only hear others on the same loop as they are. Interfacing options include taking a line out of the system, and feeding line level program audio in.

A common wiring for party-line systems on XLR connectors is as follows (different manufacturers use different configurations, so not all backpacks are compatible with each other!):

- Pin 1: Common audio and power ground
- Pin 2: Power
- Pin 3: Audio

Not too much to see there, it's the same as it's always been. 6 pin versions do exist and these cater to 2 channel systems. Other 2 channel variants are available which run both channels on the one conductor – so they use standard 3 pin XLR leads.

Various backpack systems are available including the following: Clear-Com Encore, RTS Two-Wire, JANDS Ezzi-Com, and Telex AudioCom.

## STUCK INSIDE THE MATRIX

A matrix system is a bit different – each person has their own "comms panel", and they can "key on" to speak to other people on other panels. It's a point to point system. Typically used in broadcast environments including playout centres, and OB trucks these panels usually have an inbuilt speaker and microphone although you can connect a headset. In the past, cabling for matrix systems was tremendously complicated, involving fragile multipin connectors, multicore cables, and generally large amounts of painfulness.

Nowadays they generally run on cat5 cable, which is cheap and easy to terminate (again, relative depending on how oafish your fingers are). A matrix system commonly needs to be cabled in a "star" configuration – all the panels cable back to individual ports on the matrix frame – think of it as the brain of the system if you will. It generates a crosspoint in the routing matrix which enables audio to pass from one port to another, and hence from one source to another destination.

Matrix systems are far more complicated than party-line. Commonly, crosspoints are programmed using a computer interface. Matrix frames often include programmable relay contact closures and general purpose inputs too. These allow the matrix to do things like activate "transmit" functions on radio units and such. Smart, definitely. There are a host of other possibilities and interfaces, and we're only really scratching the surface here.

Common wiring for analogue matrix systems on RJ45 connectors is as follows:

- Pair 1 Audio output from Matrix to panel
- Pair 2 RS-422 data input from panel to Matrix
- Pair 3 Audio input from panel to Matrix
- Pair 4 RS-422 data output from Matrix to panel

The general idea here is balanced audio and data lines in each direction – to and from the frame.

16 ports is about the smallest matrix you could buy nowadays, with the big ones running up to 240. But of course if all this isn't enough to sate your hunger for communication, you can go to a digital system. Some systems will now interface via MADI (a digital audio transport protocol), which makes interfacing to consoles

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and the like easier. More on why you'd want to do this later. Clear-Com, Riedel, and Telex all make a range of matrix systems in a mixture of analogue and digital.

### EXPANSION

So now you've got your basic requirement figured out, you should know if you need party-line or matrix. If you're going for a matrix based system, it's time for the optional extras. Our in-flight menu today includes some tasty interface options, so please ready your tray tables for the gamut of ways you can expand upon a matrix based comms system, which will now be served.

### USER PANELS

Probably the quickest and easiest way to interface with a matrix based system is to use the panels designed to go with it. There are a number of variations available, including desktop and rackmount models. Different manufacturers have different designs; some have coloured LCD buttons, some have displays, most will have a mic and speaker plus a headset option.

Panels will usually have a row (or two) of keys, each of which is dual action. Press down to transmit to a specific destination, or press the key upwards to listen. Pushing the key either way causes the matrix to generate a crosspoint in the routing. Panels are usually sourced from the same manufacturer as the matrix "frame".

### THE BEST OF BOTH WORLDS

Okay so you might need a combination of party-line and matrix systems – this would be applicable in a situation where many people needed comms but not everyone needed the flexibility of a matrix panel. Here's an example: Camera operators in a studio situation will generally all need to hear the vision director, so they could all be on a common party-line system. The director might need to hear the D/A, the tape op would need both, and the TD would be listening across all of it to catch any technical problems. So unlike the camera ops, these folk would each need a matrix panel to facilitate their communications needs. We can interface the two systems using a device called a two-wire interface.

This is a unit which has a two wire backpack interface on one side, and provides line level balanced audio input and output on the other (four wire). It can take the form of a standalone unit, or can be an expansion card which interfaces the audio directly into a matrix system where it shows up as another port. Two-wire interfaces are available in single or multi channel variants to suit single or multi channel backpack systems, and they need to be "nulled" to provide isolation between

the send and receive signals. Some units have an automatic process for doing this (though it's usually manually triggered), and others rely on the operator to null the line by tweaking potentiometers to find the combination that works best.

### 2 WIRES NOT ENOUGH?

Fine then, go to four-wire. Four-wire is a fancy way of saying "balanced send and receive". Most analogue matrix frames will actually allow you to send audio in and out of the ports directly, but the control options are a bit limited as is the isolation. A four-wire interface lets you do exactly the same thing, but with more control over the input and output signals. Some versions provide metering, or at the very least a LED which lights up when the signal hits unity. As with all audio systems, gain structure is very important when dealing with comms.

### ORDERWIRE

Commonly refers to a general communications line, and is usually a 4 wire system which runs between places like venues and broadcast centres. Some orderwires are copper wire all the way, but more commonly they are a multiplexed system. Orderwires are limited to 3KHz bandwidth, although 5KHz and 10KHz variants are available at different prices. For communications purposes, 3KHz is considered adequate. Simply, put line level in, get line level return out. It's important to note that any orderwire connection needs to be connected via Austel approved isolation transformers – after all it's going through the phone network.

**Curious?** Please visit our website [www.riedel.net](http://www.riedel.net)



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Beyerdynamic make a range of single and dual sided headsets, from lightweight models through to the well-known DT108 and DT109 heavy duty models. A full range of spare parts is available for these models to facilitate long-term serviceability.

Beyerdynamic is distributed by Hills SVL – [www.hillssvl.com.au](http://www.hillssvl.com.au).

## IFBS

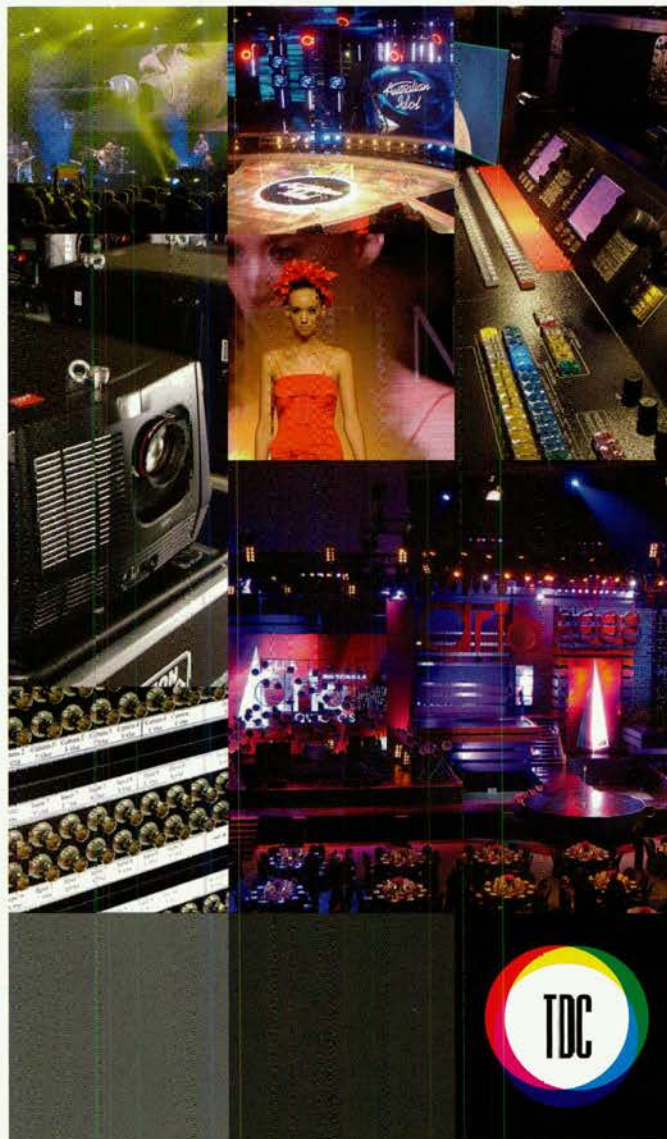
IFB is short for Interrupted Foldback, and it's the name for the earpieces worn by on-screen talent. At its most basic level, an IFB is an earpiece which runs off a line level audio signal. An IFB interface box can be as simple as a box with an XLR input, a potentiometer to control volume, and a 3.5mm or 6.5mm jack output. It will cost you about 25 bucks to build one out of parts from your local electronic store. Then just add an earpiece. It's worth picking up extra tips for the earpieces at the same time, they get covered in gunky earwax and you don't want to risk anyone's health.

The main purpose of IFB is to allow a director or producer



HME Digital Wireless Communications Systems make integrated wireless solutions, which are able to work as independent units or form part of a larger integrated system. They are distributed in Australia by Murray Tregonning Sales.

The DX100: A fully portable communications system supporting up to 15 users with 4 users in full duplex at any time and the option for mains or battery operation. DX200: The BS200 is the Base Station for users requiring interfacing to existing wired comms units. Utilising the same BP200 Belt Packs or WH200 self contained Communicators as the DX100 the BS200 will interface to all 2 wire and 4 wire wired intercom systems. DX300/ES: The DX300 and the DX300ES offers two independent or dual channel wireless secure communications circuits. The DX300ES also interfaces to wired systems. DX121: The DX121 System features the BS121 Base Station which allows users to connect directly to any headset position on any hardwired intercom station or beltpack. It also has 4 wire connectivity, and a programmable relay for actuating a two way radio or adding functionality when connected to a digital matrix intercom. [www.mtasales.com.au](http://www.mtasales.com.au).



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Telex Communication Systems offer communication solutions engineered and manufactured in the USA. Telex is available from Bosch Communications Systems - [www.boschsecurity.com.au](http://www.boschsecurity.com.au).



Audiocom is a cabled communications system which can run either fully balanced or unbalanced, with the latter being Clearcom compatible as a standard 2 wire system. Single and multi channel beltpacks are available, as are wall mount stations and other 3rd party interfaces.



Radiocom is Telex's wireless brand, and includes the BTR system. BTR is available as BTR 300 (VHF), BTR 700 and BTR 800 (UHF), as well as the digitally encrypted BTR 1. Interface options include either three pin XLR's to two wire systems, or RJ 11 for connection to Matrix systems.

Telex offer headsets including NRR rated (offering 24db of noise reduction) units and discreet lightweight units. They also offer a range of talent cueing products from ear tubes, moulds and receivers that are compatible with all major IFB devices.

to convey instructions to someone on-screen. It allows the person on-screen to hear their own mic (post fade, so they know when it's live), the director of the show (in a TV application), and whoever else keys on to them. Another example of IFB is allowing the studio to speak with talent prior to a live cross for example, or even during the cross so they can hear and answer questions. A great benefit of IFB is it negates the need for return audio going to the floor – something you don't want when satellite delay is a factor.

The mixes which run to IFBs are usually generated out of the audio console in a broadcast environment, which is why having all your comms routing available on MADI is very useful when your console runs the same protocol.

Radio IFBs are like cabled IFEs, but used when the talent needs mobility not afforded by being tied to a cable. The technology used for these is the same gear we use for in ear monitors, although commonly the transmitter and antenna systems are more powerful.



Clear-Com produce specialist communications products ranging from single channel party-line through to integrated solutions incorporating wired, wireless, matrix and IP communications.

Encore is their Party-line range, designed to be rugged and user-intuitive with many options for connection.

The Eclipse Matrix range starts at 16 ports and runs as large as 3120 user connections on a networked platform. The system is designed and managed through software called ECS.



FreeSpeak is a DECT-based Digital wireless communication system, which brings matrix flexibility to wireless communications. Clear-Com IP provide a range of VoIP which may be integrated with their other products.

The Jands EZICom party-line system provides a cost effective party-line solution for communication needs in theatre, broadcast and production applications. The range includes: E-200 two channel headset master station, E-400 Four Channel headset master station with program input and desk light output connector, E-100 single channel headset intercom beltpack, and the E-300 Wall/desktop mount single channel Speaker station.

ClearCom and EZICom are distributed in Australia by JANDS - [www.jands.com.au](http://www.jands.com.au).

## PHONE HYBRIDS

These devices are available in a number of configurations and channels, however the general purpose is the same across them all – bring balanced line level audio into and out of a PSTN phone line. Hybrids can be used for two main purposes – either to put callers “to air”, or as a communications link to another site via phone line.

When a hybrid is used for “on-air” purposes, it receives signals from the remote caller and generates audio from this. This is generally brought into a mixing console via the matrix, and the signal which is returned to the hybrid is derived from the same place. The hybrid is sent the program feed, minus itself. This is called a mix-minus. Some broadcast consoles are equipped with a

RTS is a broadcast standard communications system used by major broadcast networks in Australia. The product offering runs from 2 wire up to extensive digital Matrix systems. Interface options allow connection over ISDN, LAN, Satellite and WEB networks to enable widespread networks between remote sites. Additionally, the RKP 4 Radiocom system provides a fully matrixed wireless solution to accompany larger cabled systems. RTS is distributed by Magna Systems - [www.magnasys.tv](http://www.magnasys.tv).

facility to switch the direct output from a channel to a mix-minus feed – everything but that channel. Interfacing the hybrid to the matrix allows the producer to “pre-screen” callers prior to putting them to air.

For communications purposes, hybrids are usually linked directly into a matrix system. Audio comes out of the hybrid, and goes into the matrix and vice versa. The hybrid then appears on the relevant comms panels as a key, just like any other panel. Hybrids usually have an auto-answer facility, which should be enabled because the studio will usually dial into the outside broadcast in most situations.

## CAR PHONES

Redundant in modern society? Sure. Necessary in outside broadcast? Absolutely. Every CE/satellite/renewcruiser truck in Australia has at least one of these. Car phones are used when no PSTN lines are available, because they can be interfaced to a comms matrix, and they run at much higher power levels than handheld phones. This coupled with an external antenna means they work a lot better than handhelds. There's some level matching which needs to be done to get it right, but at a basic level you've already got 4 wire audio in and out of the thing to start with.

What about the phone bill? Again, the studio will usually dial into the broadcast. Even if they don't, if you can afford to have someone on staff who know how to interface a mobile into your comms system the bill is likely to be very low on your list of concerns.

## IP & FIBRE INTERFACES

Seems like everything these days has IP capability, and matrix communications systems are no exception. IP interfaces are available to allow both matrix routing control, and audio multiplexing of audio on to Ethernet. Imagine, suddenly your comms system can span a country (or the whole world) just by adding Ethernet. Fibre interfaces allow you to do the same thing on a smaller scale. Typically fibre

# More Arrows Than Robin Hood!



According to QSC the majority of self-powered speakers are designed backwards. They're conceived by loudspeaker manufacturers whose first priority is speaker drivers and cab nets.

QSC, one of the world's great amplifier manufacturers, believe audio products should be designed the way signal flows - amplifiers first, then loudspeaker drivers then cabinets.

At each stage components should be matched to one another in accordance with the expected application and duty cycle.

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'Bullseye!' From around \$1,900 (HP7122i) the award winning HPP is the result.



**QSC**

interfaces will allow your comms system to span anything from 500m to 20km distance, which should be enough for anyone.

## RF SYSTEMS

There are several different RF interface choices – the most important one is simplex vs half duplex vs full duplex. Simplex is one direction only – suitable for radio IFB. The transmitter is permanently in transmit mode, and the other end just receives. Half duplex allows bi-directional communication, but only in one direction at a time. Typically in this situation, a relay in the matrix frame would be used to activate the transmit function when someone “keys on” on a panel. When the key is released, the RF stops transmitting and starts receiving instead – the received signal is routed back into the matrix. Simplex and half duplex use only one frequency each. Full duplex uses two, and has a transmitter permanently transmitting, and a receiver permanently receiving on a different frequency. Radios on this system receive on one frequency and transmit on a different one. It’s a better system, but it costs more.

There are turnkey solutions available for most of these options, or you can source base station radio units and use handheld “two-way” style units. Accessories for “two-way” units include headsets, fist microphones (the kind which clip to your collar and have an inbuilt speaker), or simple earpieces for listen-only applications.

Frequencies are important when RF is concerned, and these are usually bought or hired by whoever supplies the comms system. In a broadcast situation, this will be the OB provider. Different companies own different frequencies in different areas of the country, however some also own frequencies Australia wide. The important thing to remember is that though you may be paying for a

frequency, that doesn’t guarantee there will be no interference.

## WIRELESS “BELTPANEL”

Yes, I invented the name. A recent innovation is wireless beltpack systems where the packs are intelligent and can work in point to point fashion. The system works on repeaters, and as they move about a venue beltpacks are “handed over” from cell to cell. This system unites the benefits of wireless beltpacks with those of a full matrix panel, and it’s pretty clever.

## HEADSETS

Depending on your application, you’ll probably want headsets somewhere in your communications system. If you’re in a quiet environment lightweight units should do the job, however if there’s a lot of ambient noise then consider a noise-cancelling model. Heavy duty noise cancelling units also provide good rejection of external sound, making it easier to hear the stuff you need to in noisy environments.

## WEIRD CABLING

RJ45 to twin XLR – sounds weird huh? Maybe, but considering most matrix systems have RJ45 ports with audio in and out, it’s one way to do it. If you needed to get audio in and out of a matrix to a two-wire interface, this is the cable you’d need. A patch bay would be an alternative, and though introducing another potential point of failure into the system its potential to fail seems less than heavy XLR connectors hanging off two thin strands of solid copper as you’d find in a cat5 cable. A better alternative would probably be to use a two wire card which fits into the matrix frame, and already has the right connectors on it!



Riedel’s Artist Digital Matrix operates on an optical fiber backbone and provides de-centralised infrastructure. This allows matrix hubs to be placed in locations where multiple panels are required, thus reducing cabling requirements. Matrix sizes run from 8x8 to 1024x1024, and individual nodes may be located up to 20km away. Manufactured in Germany, the system is fully redundant and all modules are hot swappable. Card options include Cat5 and Coax panel cards, as well as MADI and VOIP cards. Other available interfaces include PSTN and ISDN interfaces, 2/4 wire interfaces, panel multiplexers (allow connection of multiple panels over one fiber link). Artist panels are available in 12 to 28 key configuration, with shift function and expander panels as an option to increase the number of keys to 128.



The Performer series is Riedel’s digital party-line system. With a variety of base station and sub-station options, it works as a dual channel system. One of the more notable features is “remote mic-kill” which allows the operator to remotely silence any microphones left open on the loop. Performer can be fully integrated with the Artist series.

Riedel is distributed in Australia by RIEDEL Communications Australia – [www.riedel.net](http://www.riedel.net).

## HOW YOU PUT IT TOGETHER?

Simply? Get somebody else to do it. Preferably a comms tech - or be prepared to do a lot of tinkering and testing yourself. Because of the number of different devices involved and the importance of maintaining suitable gain structure, it’s necessary to have a good understanding of the devices you’re dealing with. Add in interfaces like relays, and GPIs (general purpose inputs), plus the required IT and RF spectrum management knowledge and it goes some way to explaining why good comms technicians are so rare. Done poorly it’s the one job that will be immediately apparent to everyone involved in a gig – don’t stooge on your labour!

The really important thing to remember at the end of the day is that any comms system is as only good as the planning and equipment behind it. Good luck, over and out.



ASL makes a range of analogue and digital intercom systems. The DS 4000 M Master Matrix is the centrepiece of the ASL Digital Intercom system, and connects up to 40 users in either star or daisy chain topology over category 5 cable. Six matrix units can be linked together to support up to 240 users. 8, 16, 24 or 32 channel speaker stations, as are 2-channel

digital beltpacks.

Speaker Station is ASL’s party-line offering, and includes single, dual, four or six channel table top or rack mount intercom stations. The speaker stations are powered via the intercom party line. Features include: inbuilt electret “noise cancelling” gooseneck microphone and loudspeaker, headset connection, TALK and CALL functions, Channel on/off function, Mic Mute, Buzzer Mute, Volume Control, and Program Input. ASL also make a theatrical cue light system which runs over standard mic leads.

More information from Madison Technologies – [www.madisontech.com.au](http://www.madisontech.com.au).

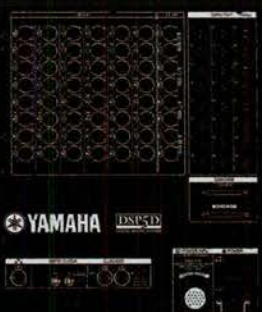


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# SOME GIGS JUST DON'T GO RIGHT...

## *A tale from the road*



Bruce Johnston went back in time, from digital to the Midas XL4 - as pictured here several Oasis tours ago!

**B**ruce Johnston was looking forward to home after a long month of European arena shows doing FOH for Oasis. The Melbournian is on his twelfth year with the UK based band.

Three songs into the final show in Paris, the PA blew up. "It was the XTA processor; it suddenly threw a three hundred millisecond delay into the left and right centre hangs, but not the outer hangs". In audio, three hundred milliseconds is a long delay, around one third of a second. The band quickly got confused.

"They slowed down, then stopped and Noel yells 'Oi, what the f—k, we're not a reggae band', Bruce recounts. "I was on the talk box yelling 'Get them off, it's a critical failure'. It took us five minutes to get it all up again, and the crowd was not happy."

With the adrenalin still pumping, something then happened that Bruce has not endured before.

"I was pushing a group fader up for a solo. I mix off the VCA groups. I have main vocals, backup vocals, guitars, kick, snare, drums. As I pushed the fader, the automation crashed. Every LED on the console came on. The sound stopped."

Bruce knew he needed to reboot the console, which would take a minute. The band played on, then faltered when they realized the PA (but not the stage monitors) had again failed. "Tell 'em to keep playing" Bruce yelled into the talkback, because he knew the French fans would probably riot if the band stopped again. "As it was, they had been pitching beer at us", he said.

Once re-booted, the Midas XL4

automation came back on line, and the gig became routine.

"So why the now ageing XL4, when last year you bought and toured a Digico D5?", I asked Bruce.

"I looked at the XL4 the other day, and realized most of my channel EQ's stay the same all the time. But when I was on the D5 I was forever in the screen, messing with EQ. I just got sick of digital, and wanted to go back to something more reliable."

Things do go wrong. Asked about his most embarrassing moment as a sound engineer, Bruce remembers a Crowded House show where when he hit the introduction tape, it was at the end - not rewind. "That's how it was with cassette tapes", he says. "The band were not impressed."



## PROFILE: STEPHEN WICKHAM



*Freelance Lighting Designer and Technical Manager for the Lyric Theatre in Sydney.*

### How long have you been doing this?

Lighting since 1970 something and managing the Lyric since it opened in 1997.

### How did you get started in this crazy industry?

I left Art college in the UK to work for a

rock n roll band who needed a roadie.

### Where do you live?

Sydney's upper north shore. Ah, feel the serenity!

### Kids/family/cat/partner/live with mum?

Two beautiful kids, a beautiful wife and a border collie called Suze.

### Highlight of your career?

Being with the Rolling Stones in 1982.

### Lowlight?

Lighting "The Music Of Andrew Lloyd Webber" at the Great Hall of The People in Beijing. I could write a book about everything that was wrong with that one.

### Strangest moment?

Opening the dock door at the Meralco Theatre in Manila to do a bump-out and seeing black rain falling. We were stranded for a week while Mt Pinatubo erupted.

### Biggest gig?

Probably Live Aid at Wembley Stadium London in 1985. I wasn't designing but went along to help out.

### Hardest gig?

Anything and everything at The Great Hall in Beijing.

### Who is your mentor / hero?

William Turner as a painter of light and

Bob Dylan for everything else.

### What's changed since you started?

Everything really but not all for the better, Someone invented lights that move on their own and OH&S became the single most important thing to consider with every decision.

### Six simple LX tips!

1. When touring take everything you need with you, even power if possible.
2. Keep plans to scale and include a scale bar for reference.
3. Check the states from the bad seats in the house as well as the good ones.
4. Don't leave backlights blinding the audience for extended periods.
5. Don't be afraid to experiment with colour, try something new with each project.
6. Challenge conventions but make sure you support the overall project. It's usually a good team effort that makes a good production.

### Rant: cut loose and let it flow.....

The biggest problem I see in the industry in Australia at the moment is a real shortage of skilled crew in all departments. There are many opportunities for people to lead but few who are willing to step up to the challenge. I won't go on.



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# history



Here we go again to a place where we can learn from what happened before now. Our journey this month sees us first look into a magazine with a black cover and a screaming headline 'The Farnham Machine'.

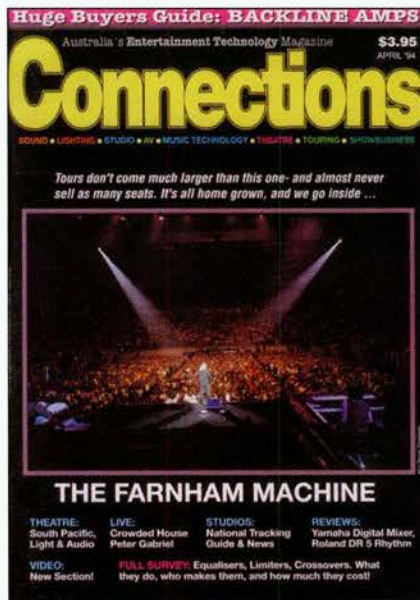
## CONNECTIONS APRIL 1994

Interestingly for us, the magazine 15 years ago has the same page count and roughly the same advertising count as this very edition of CX. What was different though were the six pages of classifieds – this was the pre-website era, so things were advertised in print that today go to EBay.

Ugh. Open the magazine and there are adverts for scanners – 'Cyberlight, the ultimate power tool', and then 'Challenge the gladiators – Abstract Design to Light'. The back cover had the Clay Paky Mini Scan on there. And the inside back: the Coemar NAT, a different take on moving mirrors, since it had a periscope type thing on the front that moved the light to even more places. Sigh. Like all lighting professionals everywhere we are so glad the era of scanners, waggly mirrors and disco effects is OVER!

Hey – what happened? The Australian Radiation Laboratory published safety guidelines for safe use of lasers in Entertainment. There's still plenty of ignorant use of lasers out there – if the laser can get into any person's eyes, bad damage can be done.

Seminars On The Hour was our lead story about the forthcoming debut of ENTECH, along with an Award

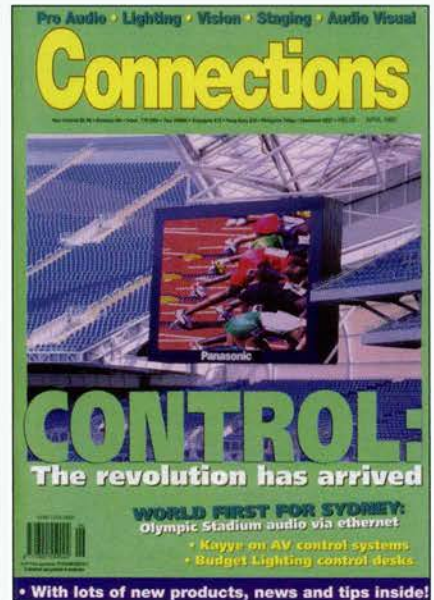


Fraud item about a recording studio that mailed 32 identical nominations to the ENTECH AWARDS auditor.

Startec Pty Ltd was in liquidation and the Strand agency was awarded to Bytecraft. This was the start of the remarkable rise of Bytecraft, which of course is today a significant player in Australia's lighting biz.

John Farnham's 'Talk of the Town' tour was the feature in this mag, it was a monster, with ten nights in Melbourne. Those were the days – all analogue, lots of Vari\*Lite, and double the road tonnage of a similar tour today.

Didn't make it dept: The Light and Sound Design ICON moving light system was introduced into Australia. It joined the Morpheus Pan Command system as another 'rental only' competitor for



Vari\*Lite, then dominant in the lighting rental biz across Australia.

Video On The Road was the header for an introduction story about Big Picture Australia, the touring video firm belonging to Dennis Murphy and Joe Bonanno. They've gone on to bigger things, still as Big Picture – maybe they could relaunch their successful firm as 'Bigger Picture'.

E602 was a recording studio on a private island in the Whitsundays. The name should have rung alarm bells, 2 x 301 = 602, right? Turns out this was an April fools day joke, fairly silly considering the magazine was onsale all of April. We were amazed to get serious calls asking us for more info, even after we reported the facility would have SSL, Neve and DDA consoles.

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*Ian Whitworth, director of marketing, and Gary Hackett CEO of Staging Connections, ten years ago. Both now heading their own AV firms in competition with each other - and Staging. Pictured at the then new HQ in Rozelle.*

Speaking of Studios, we had three solid pages of BASF Tracking Guide in this issue. If we did a Tracking Guide today it'd be around a quarter of one page.

#### WHAT WE PAID:

- Second hand Golden Scan (Mk 3) just \$7,000 each. Wow.
- Klark Teknik 4 way Noise Gates: \$2,970
- ARX EC2 crossover: \$842.

### CONNECTIONS APRIL 1999

What a great era, the mag was finally looking great and the spelling had improved slightly. In April 1999 we had 12 extra pages of content, there was a real air of excitement about the forthcoming Sydney Olympic Games - not to mention a lot of business associated with it.

Sontec Sells To Chubb was the lead news story, and what a great debacle it became shortly after when senior and former management walked and set up Tecsound. Chubb badly misread the audio market, blinded by the fact Sontec had 160 staff and did \$28 million turnover mainly in commercial audio installations. Chubb didn't lock down key staff - assuming that the directors of Sontec were all they needed. It went downhill for Chubb really fast, and eventually Tecsound listed as TSV Holdings.

Wavefront Momentum was another lead story, this was the end of the pre line array era, in 1999 Martin Wavefront was battling against EAW's then new KF750 and EV X-Array.

Staging Connections Build New HQ. With 480 staff and 60 trucks and vans, Staging Connections was then and is today Australia's leading audio visual supply house. CX was invited over for a tour, and snapped a happy shot of Marketing Director Ian Whitworth and CEO Gary Hackett. These days they compete with their own spin off audio visual firms, having long left Staging - who are still headquartered at the Rozelle facility.

Ethernet control at Olympic Stadium - our cover story did a good job of detailing the complex and clever installation by PA People at the new stadium in Sydney.

The Australian Music Association announced the first AMAC convention on the Gold Coast.

By 1999 our Classified pages were down to half what they were five years earlier - and were FREE for a text advert. This issue had an article about the world wide web, which was still a mystery to many.

LSC emerged from trouble, as the administrators departed. We reported that the firm had managed to continue to sell and ship its innovative lighting control products since The Troubles. Happily, ten years on they've never looked back.

Truss wars raged, with Brown's Precision Welding advertising a truss that looked suspiciously like CLS truss (also advertised). CLS made representations, things got serious.

#### WHAT WE PAID:

- KRK V8 biamped studio monitors \$3,199 pair
- GA 32/2 Yamaha mixer \$6,295
- Jands Event 60+ \$8,192 plus tax.



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Sensitivity	97dB (1W, 1m)		98dB (1W, 1m)	
Frequency Response	70 -20,000Hz		60 -20,000Hz	
Directivity Angle	Horizontal: 90°, Vertical: 40°		Horizontal: 90° Vertical: 40°	
Speaker Component	Low frequency: 30cm (12") cone-type,		Low frequency: 38cm (15") cone-type,	



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# LEDAVISION LED SCREENS



*LED is the growth market in the big screen world at the moment. LED screens offer a number of benefits over other display devices – they can produce brighter images than projection and are less affected by ambient lighting conditions, and they can be made bigger than CRT, plasma or LCD displays. We'd like to pull a screen into the bunker for a test, but the bunker ain't big enough, so instead I went to Lighthouse Distribution, a division of the Hills SVL group, to talk about their screen range.*

By **ANDY MACKENZIE**

**L**EDAVISION is Lighthouse's house brand of LED screen, and they've put a lot of thought into its design and production. Like most of their competitors, they produce screens in a range of pixel pitches, IP ratings and so on in order to meet a variety of customer needs. There are, however, differences in the way the LEDAVISION system goes together.

## HOW IT WORKS

First up, this is not an off-the-shelf product. It is a bespoke solution to your individual requirements. Rather than ringing up and asking for 24 panels, you tell them what you need and they spec a system to meet your needs. The system will consist of a bunch of panels in the appropriate pixel pitch and type, at least one of which will be a master. Then there will be a video interface.

The video content gets translated into screen language by the interface, which then fires the message down a cat5 cable to the master panel which, in turn, sends the requisite information to each of the other panels. Lighthouse Distribution prefer to spec an extra master panel into each system, since if you lose that the whole screen becomes unworkable. For a production company doing different sized and shaped screens all the time, the logical answer would be to buy a bundle of master panels and a bigger bundle of slaves, then configure the screens as you need them. For a permanent installation, you just build it

## PIXEL PITCH

The LEDAVISION screens come in both indoor and outdoor varieties, the key difference being that the outdoor variety are suitably IP rated to live outside. The other difference is that of pixel pitch. Outdoor screens are available in: true 10,

12, 16 or 20mm pitches, while the indoor versions come in true 6 and 7.62mm (although you could of course use an outdoor screen indoors if you wanted a larger pixel pitch for some reason).

Pixel pitch is a critical factor in screen selection for video content, as it determines your minimum viewing distance – the pixel pitch (in mm) is roughly equal to the minimum viewing distance in meters. Viewed from any closer, the image tends to be pixilated and blocky looking. Think about what it looks like when you sit too close to the telly. So why not just make every screen with a really tight pixel pitch? Because of the dollars. Components cost money, as does assembly, so more pixels means more money – and if no-one's going to notice anyway...

This issue of pitch has led many manufacturers to use 'virtual pixel' systems to improve the resolution of some displays. Virtual pixel systems use a variety of processing systems to create the

illusion of the display having more pixels than it actually has. This allows a virtual pixel system to cost less than a true pixel system with the 'same' resolution. All the LEDAVISION panels use true pixels rather than virtual.

### SCREEN SIZE

Another thing fundamentally affected by pixel pitch is the minimum effective screen size, something which limits the application of this technology to smaller displays. Lighthouse Distribution recommend that for typical video display purposes, the target screen resolution you should go for is 400x300 pixels. Even at a fairly small pixel pitch of 10mm that means a screen 4m high by 3 wide, and the resolution will be lower than a standard definition TV, but bigger, brighter and able to be used outdoors! As your resolution needs increase, so does the minimum possible screen size.

LEDAVISION offer three different types of LEDs in their panels – SMD, available in 3x3 and 3in1 formats or a globe version. The SMD use rectangular LEDs and look pretty similar, the main difference being that the 3 in 1 version offers about 20% improvement in brightness. The globe versions use small round LEDs and are still brighter. To

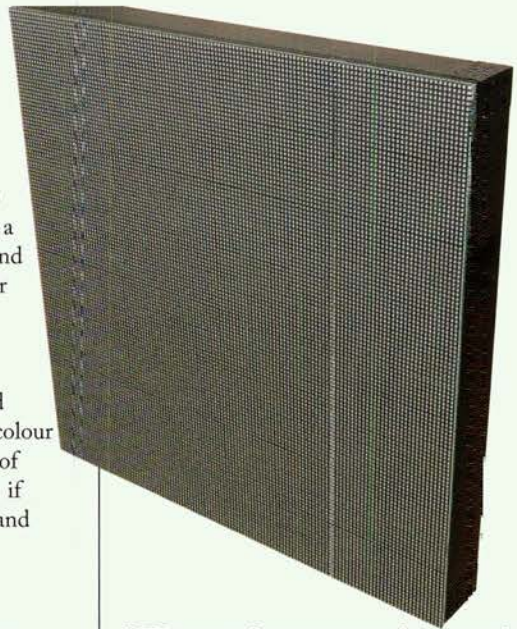
achieve better contrast in outdoor screens, there is a little sunshade between each pixel – similar principle to the things on traffic lights. Viewing angles are quite wide, at about 140°.

The assembly of the panels into a screen is quick and simple using a system of locator pins and bolts, and each panel is made up of a number of easily replaceable modules – so if a module fails you can just pop a new one in. When you order a screen, all the panels are calibrated together to ensure consistency of colour throughout, and they do a couple of spare modules at the same time so if you need one they've got it ready and calibrated to match.

### WHAT IT COSTS

Given the fact that this is a tailored solution, it's verging on impossible to give any kind of indicative pricing. An entry level figure of around \$30k+ for a basic screen is probably fair, and then you've got all the variables...

The bigger it gets, the more it costs. The smaller the pixel pitch, the more it costs. Higher IP ratings cost more. The particular variety of LED you choose will influence the bottom line. In the end, an



LED screen from any manufacturer isn't something you're going to buy with what you found down the back of the sofa, and there is no real upper limit to the amount you can spend if you really try, so it's worth getting good advice and buying something that's going to fit your specific needs. Call the guys at Lighthouse Distribution, and they'll help you figure it out.

[www.lighousedistribution.com.au](http://www.lighousedistribution.com.au) CX

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# FRIENDLY OFF, YOU FREAKS!

## RADIAL BUILD MUCH MORE THAN PEDALS

*There's a close relationship between a guitar rig and a PA system, according to Radial Engineering President Peter Janis. The Canadian firm build a very wide range of switchers and interfaces for pro audio and for guitarists. "Dumbass gear – dumbass is my middle name. This stuff is like a hammer or a saw, tools for the trade", he says.*

By JULIUS GRAFTON

Picture a Carlos Santana or similar – a mega star revered for their guitar work. They use multiple heads (amps) and need to switch them into different speaker boxes. A valve amp doesn't like having the load dropped, so a switcher has to insert a dummy load and isolate inputs to nurture the amplifier. Radial have one that is pedal driven.

Then think about a festival where these days you'll find several consoles at front of house, even a mix of digital and analogue, to please the fussy engineers whose riders dictate this stuff. Rather than route the console outputs through another console, Radial make a console switcher WITH inputs for auxiliary subwoofer sends AND some extra neat touches. See the sidebox for more on this.

CX enjoyed a night out with Peter Janis and several guys from Amber Technologies, who have recently added Radial to their product distribution lines. It's fair to say a lot of the firm's success flows from his wide travels to promote the brand. He does a trip per month, and strangely enjoys long haul economy travel. Go figure.

Radial became famous for their D.I. boxes, a product which is inherently not exciting since all it does is impedance and gain match a guitar to a balanced line input. Much more exciting are things

*H Amp speaker to headphone driver*



*Julius with Peter Janis.*



*SW8 8 track autoswitcher.*

like the H Amp Speaker to Headphone Driver. Now we're talking – plug a speaker line, say it is the drummer's wedge speaker line, into the DI sized box. Then plug a headset, IEM or i-Pod earpiece into the other side, and you have

a ridiculously overpowered solution in place of an in-ear system. It makes more sense when you think about it, since there's plenty of times you wish you could convert a speaker feed into a headphone feed.

They make overdrive and distortion pedals for guitarists as well, but we got more excited about their snakes and transfer splitters. Peter says that because there's no standard in digital console snakes, most big festivals still do it all analog through an isolation splitter and then patch into the various digital multicores or direct into those digital desks like Yamaha's PM5D or M7CL which have XLR connectors on the back. "Why is there no standard?" he mocks, as he ships increasing numbers of custom multicore systems.

So will the digital future one day extinguish Radial and its arsenal of boxes, widgets, tools and devices? Big no, says Peter. If anything, the future is even more Radial. Example: the SW8 auto switcher, into which you connect 2 lots of 8 backing tracks, if one stops it auto switches the other to the 8 outputs. This is so if one computer or multitrack drops its bundle – and they do – you don't have a Milli Vanilli moment.

Who uses this kind of technology? "Almost everyone", Peter says, reeling off a long list of performers who use backing tracks. You'd be surprised, and CX would get some legal letters, since some very cred performers have embedded backing tracks into their gigs. CX



**FAR FROM DUMBASS**

The Radial SW4 is a four channel club and festival switcher that allows the system tech to switch between various mixing consoles and music sources such as a CD player, DJ mixer or iPod.

According to Radial Production Manager Steve Hopia: "When we set out to build the Radial SW4, we insisted on 'straight wire' audio performance and unmatched reliability as the cornerstones of the design. To this end, we engineered dual-path redundant relays so that should one ever fail, the backup relay would seamlessly take over. Furthermore, if the power supply fails, the SW4 is designed to work as a passive flow through device. Two ultra-premium Jensen JT11-MBPC transformers are employed in the primary signal path to provide isolation without coloration. These 'world's best' nickel based transformers are capable of handling +28dB sound levels at all frequencies without artifacts."

The Radial SW4 features four stereo

inputs: 1, 2 and 3 are 100% passive balanced XLR for high-end touring consoles. Input 4 is active and designed for CD players, DJs, and I-Pods. It is set up with 4a and 4b input sets for use in multi-function facilities. A headphone monitor bus allows any or all of the sources to be selected for pre-switch auditioning. A stereo monitor bus output is also available to drive reference monitors or a second sound system.

As the SW4 will likely find its way on many tours, it can be used to feed the house PA with walk out music. This can be very advantageous as it allows the FOH position to begin tear-down as soon as the show is over, saving countless hours over the length of a tour. A microphone input has also been included for announcements and evacuation safety. Finally, in effort to eliminate errors, the digitally controlled 'safe' button on the front panel must be depressed if one intends to switch the system.

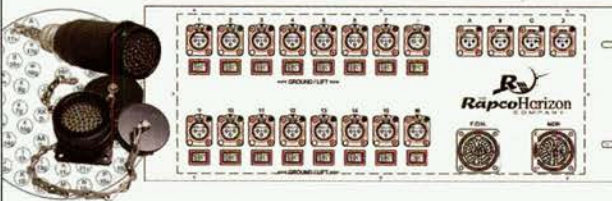
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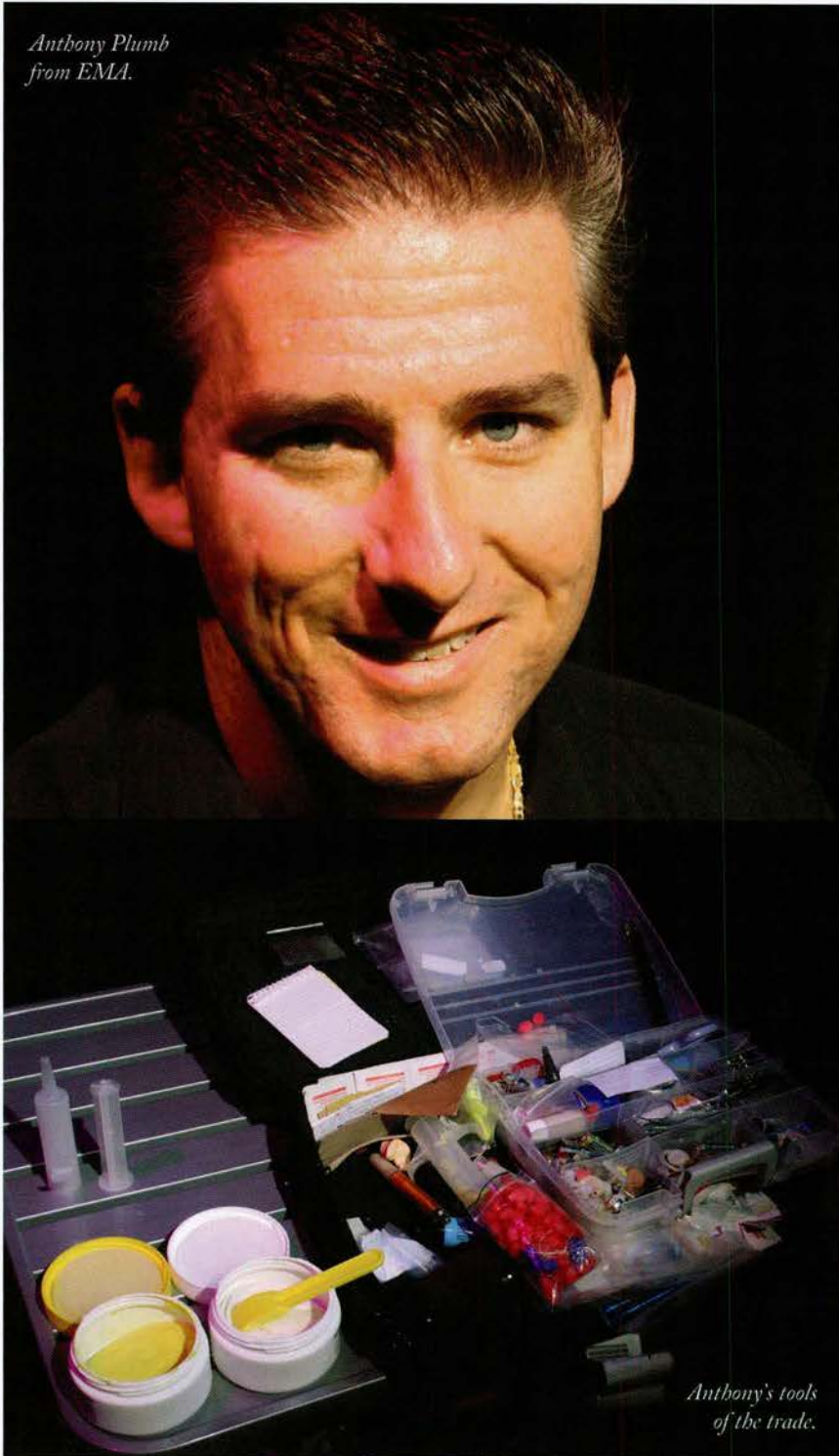
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# CUSTOM IN-EAR MONITORS

## *The product and the process*

*One of the key problems afflicting so many shows these days is that of excessive SPL. There are a couple of reasons this is so abundant, and some are more fixable than others. Science Boy takes a look at one of the ways the problem of excessively loud stages can be fixed.*

*Anthony Plumb  
from EMA.*



*Anthony's tools  
of the trade.*

By JIMMY DEN-OUDEM

Putting a whole band on in-ear monitoring is a great way to reduce stage noise. So why don't we all do it? A variety of reasons exist, the primary ones being cost and human objection.

### WHY IT'S NOT AS EXPENSIVE AS YOU THINK:

The ready availability of generic in-ear monitor headphones has all but negated the argument about cost. Granted the wireless systems are generally the more expensive component in the system, but even entry-level users now have affordable options available to them. Don't need to move around on stage a lot? Go for a wired system instead and things become even more affordable.

Now granted, high end users probably won't settle for a generic solution. After all, everyone's unique. This is why the custom mould market exists. I've used enough generic earphones to know roughly what to expect in terms of noise rejection, and performance. Never having used custom moulds before, I decided it was time to check out the differences in results as well as how they actually make the things.

I got together with Anthony Plumb from Ear Monitors Australia to get some moulds done, and ask a few questions. Anthony and his brother Tim have been making ear-moulds for musicians since 1995, so it's fair to say they have some idea of how the process works.

### HUMAN OBJECTIONS

It seems the main reason people don't like the idea of going to in-ears is usually based on a bad experience with ill-fitting units. Whether generic or custom, if the thing doesn't fit will and feel comfortable of course it's not going to be a sustainable option. It's hard to "try before you buy" something which you intend to bury in your ear canal, for reasons of health



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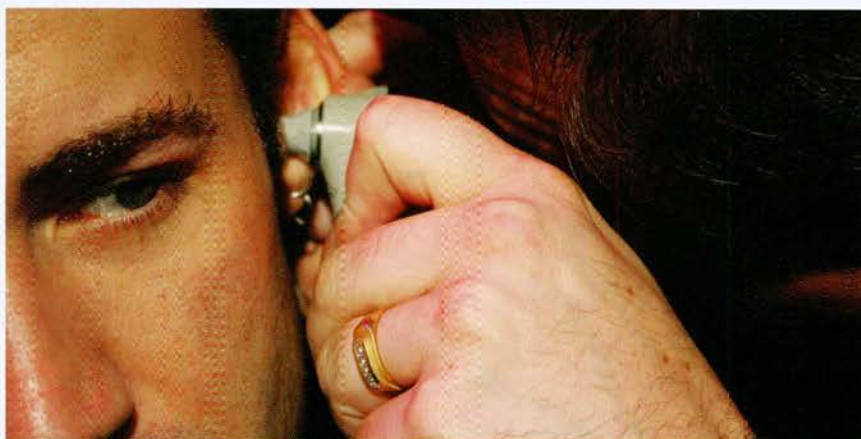
Typical monitor setup



M-48 Live Personal Mixer

Simple Setup  
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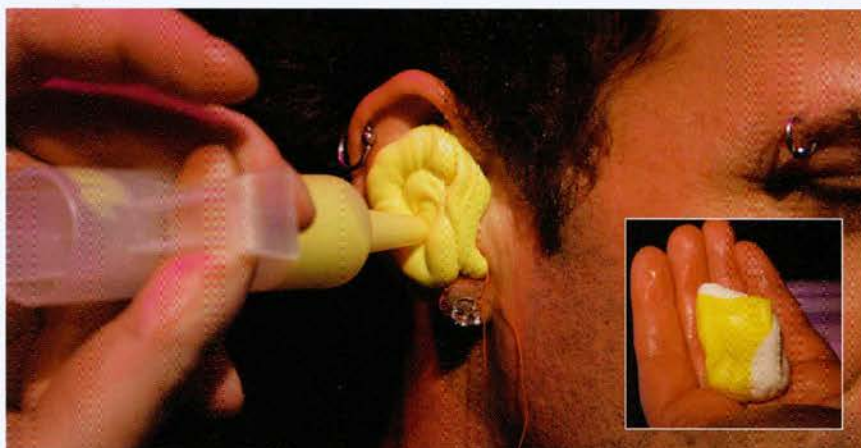
[www.rolandsystemsgroup.net](http://www.rolandsystemsgroup.net)



*Anthony trying to see through to the other side.*



*Foamy things go 'in.*



*Getting an earful - literally. (Looks like a giant yellow snail crawled into my ear and left its shell behind.)*



*A few minutes later, we have moulds.*

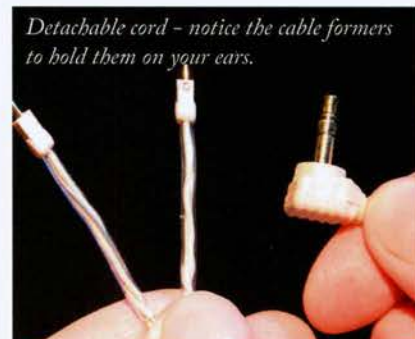
and avoiding general disgustingness. So for generic systems, ear monitors which supply a range of fit options are a good choice. So far as the custom version goes, a big part of getting the fit right is ensuring the initial ear impression is taken correctly.

Anthony travels around Australia and he (or a representative of EMA) can take impressions in all capital cities. If you're willing to wait a couple of weeks, there's no additional charge – and they can come to you! Ear moulds for in-ear monitoring are a bit different from the style taken for hearing aids, so they prefer to do their own impressions to ensure a comfortable and functional fit.

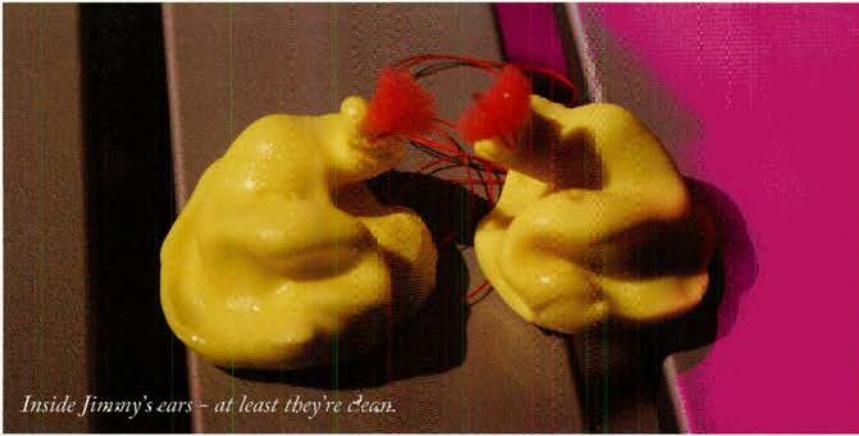
## THE PROCESS

Anthony came out to the Julius bunker on a rainy Wednesday morning, tools of the trade in hand. 5 minutes later, he was setup and ready to go. The first part of the process was to take a good look inside my ears and make sure there were no injuries, lumps, or holes through which you could see out the other side of my head. I checked out, so it was onto the next part of the process, where he installed little chunks of red fluffy foam on strings into each ear canal. This is to prevent the ensuing "goo" from going too far down my ears (which would be bad). That done, he mixed up some quick setting silicone compound (or "goo" as I prefer to call it), put it into a big syringe, and gave me an earful. Twice. A few minutes later, the goo had solidified and the moulds were removed from my ears (which internally are apparently were clean though quite unremarkable).

The whole process only took about 15 minutes, and contrary to expectations wasn't even uncomfortable. Once the impressions are taken, there's some consultation about the intended purpose of the moulds, as well as more important things like choosing a colour. That done Anthony headed off into the rain to take impressions for some real musicians, while I sat down to wait the 3-7 working day turnaround for my new moulds to arrive.



*Detachable cord - notice the cable formers to hold them on your ears.*



Inside Jimmy's ears - at least they're clean.



Some prototype moulds made other materials.

## THE VERDICT

A few days later (the standard 3-7 working days), the moulds arrived and it was time to put them to the test. I tried a few things, the first being I using them in a really noisy environment. I plugged in my iPod, chose a nice vocal track, and

had a listen. It was good - nice clean vocal, no odd frequencies sticking out where I didn't expect them to be. I was happy. Then I walked into the middle of Victoria Road Nothing changed, save for my chances of being hit by a semitrailer at full tilt. I swapped to some cheapie generic headphones, and the noise rejection was really no comparison.

Next test was to plug in a mixer and mic, and belt out a few verses of my favourite songs. The detail you get from something buried in your ear is significantly greater than you would from a wedge - I tried a few different microphones and decided the best choice

was to leave singing to the professionals. At least now I know how my voice really sounds.

The final test for me would be to use them for monitoring purposes in place of a listen wedge. I have in the past used a really loud wedge in conjunction with flat attenuator generic plugs. This worked pretty well to give me some isolation from the stage noise, and still have some idea of what I was sending down the line. I didn't get to trying it, but I think the moulded earplugs would provide similar if not better same noise rejection, but without contributing further to the noise problem. The frequency response on them seems really flat too which is a bonus.

So the verdict is that while I don't like my own singing, I do like my new ear moulds. Starting at \$660 RRP for single driver units, the ear moulds certainly aren't cheap. But like with so many other things, you do get what you pay for. Were I not prone to losing small things with alarming regularity, I'd probably go for the dual driver model (RRP \$1880), or even the triple (RRP \$2440). Turns out I can upgrade mine later on anyway if I choose to.

Check out [www.earmonitorsaustralia.com](http://www.earmonitorsaustralia.com) for further info.



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# TC ELECTRONIC C400XL

## Source-based Gate / Compressor

TC Electronic have a fairly diverse product offering spanning everything from broadcast to studio applications. Their most recent offering to the live sound market is the C400XL Source-based gate / compressor.



By JIMMY DEN-OUDEM

### THE RUNDOWN

The C400XL is a dual engine processor with multiple routing options. You can use the two engines individually as mono processors, or you can cascade them in mono or stereo mode. So you can process a stereo signal twice, either in serial or parallel configurations. Each engine can be configured as a compressor, gate, expander, de-esser, or de-hisser.

### IN, OUT, SHAKE IT ALL ABOUT

As do all things TC, the C400XL looks good before you even get it out of the box. It's nice. Even the packaging is nice, as is the user manual.

It's worth pausing on how good the user manual is: few manufacturers include signal flow diagrams, and suitable cable wiring configurations. It's got enough useful information inside that you could be forgiven for thinking TC expect you to read it – which you should (Sod off. Ed).

Physically, the C400XL is smaller than expected – 1 rack unit tall, but only about 105mm deep. It doesn't weigh much either (1.5kg), yet it feels quite well built. Balanced XLR is the connector of choice for input and output. For some reason the connectors are inverted, possibly the PCB inside is too though I didn't crack the box open to find out. For those who want to attach the unit to a digital console, there are also AES/EBU inputs and outputs. The processing itself is digital, so it's possible to put a signal through the unit without ever hitting an A/D or D/A converter. Power delivery is via standard IEC connector.

All the controls feel nice and solid, and sensibly enough TC put numbers on the controls which actually relate

to things. Metering and indicators are sensible and what you'd expect: LED for threshold, 6 LEDs for input, 6 LEDs for gain reduction. There are units around with more lights, but they won't tell you much that your ears can't. You choose the process each engine performs by turning the big rotary switch – there's one for each engine.

### EXPANDER / GATE

These processes work like they should. Fairly standard and there's not too much to say – attack time is good and it all works. If you don't know the difference between an expander and a gate you won't care, but if you do know then you'll appreciate that you can use it as either.

### MULTIBAND COMPRESSION

The principle of multiband dynamics processing is that it allows you to treat different frequency bands with different ratios, and attack and release times. The idea of this is that compression is more transparent, and sympathetic to the source material. Multiband dynamics processing isn't a really recent thing, but its application in live sound is. The TC Finaliser does multiband dynamics processing (among other things) but setting it up takes a bit of time because you can adjust every single parameter. Good in a studio where you have the time, but in live sound you usually don't.


The C400XL solves this with preset algorithms, based on different instruments. Choose the instrument you're compressing with the rotary encoder, dial the threshold in, set your ratio and make-up gain as appropriate. The box figures the rest out for you. All

the fun with only some of the effort. If you're inserting across a mix group or bus then go for the composite setting – it's designed for exactly that. There's also a mix control, which allows you to mix the compressed signal with the uncompressed one. So you can have sweeping transients without missing out on the quieter details. Turn the mix control all the way to 0% to bypass.

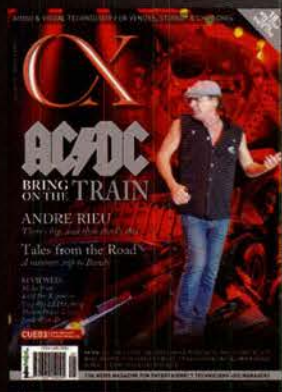
### THE VERDICT?

The C400XL is the successor to the C300, which had nice little handles on the front to facilitate easy removal from a loaded rack. TC have dropped this on the new version which though disappointing is hardly likely to effect its operation. The move to XLR connectors is a good one for serious users.

It's not a toy. Like every compressor, used excessively it will become really obvious. Perhaps not as soon as others, but eventually. There's only so much manufacturers can do, the rest is ultimately up to the user. Knowing a bit about how compression works will definitely help you get the best out of the C400XL, and reading the manual is a really good place to start.

The C400XL retails for \$889, which is about what you should expect to pay for a decent compressor. TC Electronic is distributed in Australia by Amber Technology ([www.amber.com.au](http://www.amber.com.au)). 





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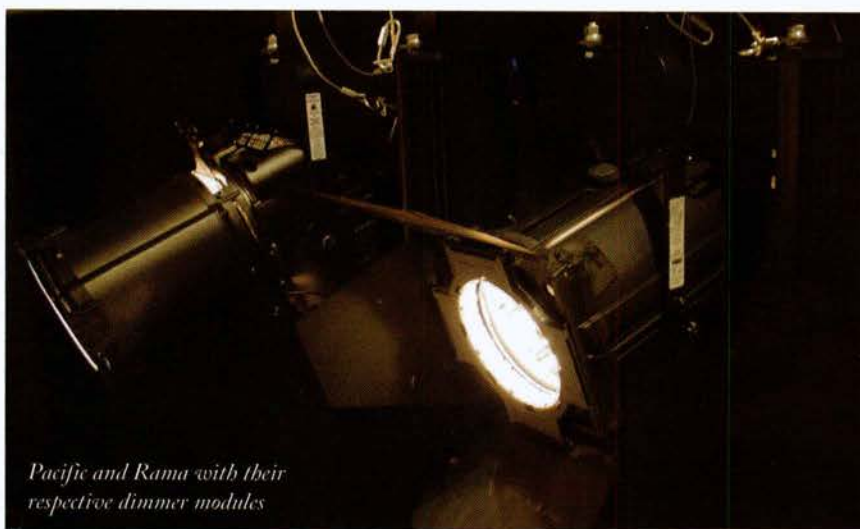
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# SELECON RAMA & PACIFIC 80V

*Selecon, based in New Zealand, have been a consistently strong performer in the Australian market for a long time. The current series of 80V fixtures represents an exciting new approach to theatrical lighting.*



*Pacific and Rama with their respective dimmer modules*

By **ANDY MACKENZIE**

## THE PACIFIC

To those who remember its first appearance, it may come as a mild surprise to be reminded that Selecon's Pacific is now over ten years old. Unfortunately, most of us have probably fared less well with age than the Pacific, which still presents as clever and innovative. One of the great joys about the Pacific range has always been the versatile and modular design that allows it to fit so many specs.

For those who came in late, I'll do a quick recap. Each and every Pacific fixture consists of a lamp base, a lamp housing and a lens tube. You can take any of the permutations of each and knock the three bits together to produce a Pacific to meet your needs. The one certainty is the lamp housing – the assembly that holds the reflector, hangs from the yoke and carries the cunning heat dissipation system.

On one side of this goes the lens tube – available in a bewildering range of beam angles both zoom and fixed. On the other

side goes the lamp base, and that's really where this story lives. There's quite a collection of lamp base setups available for the Pacific, from the simple tungsten sources (3 options) through the discharge lamps (4 options) and the low voltage source discussed here.

## THE RAMA HP

The Rama 175 is a new addition to the 80V collection, and complements the Pacific well. There's not really a huge amount to say about the fixture itself except that it's a nice 175mm Fresnel, with all the features you'd expect. Both the Rama and the Pacific are beautifully engineered and built – obviously Selecon really care about build quality. All the controls are smooth and functional, heat management is good, and there are some cute features like the captive safety wires.

## THE LAMP

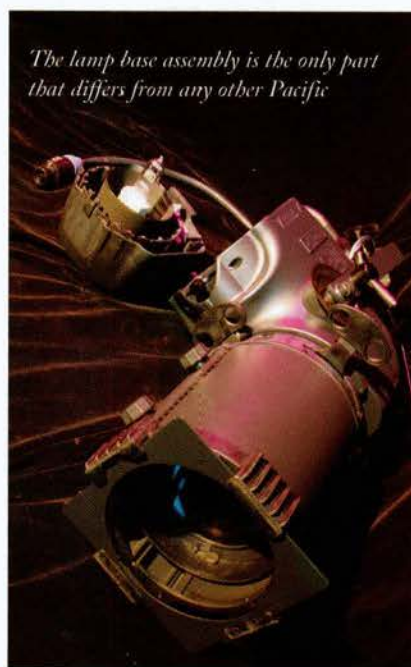
Okay. Audio fanatics can switch off now, because you're probably not going to appreciate reading about how some watts differ from others and the quality of white a lamp gives being important and

other such lighting nerd stuff.

Are they gone? Good, because I actually do want to talk about this.

The lamp Selecon use in the 80V fixtures is a 1200W unit, but it produces a very different light from what you would expect from a 240V lamp of the same power. The light produced by an incandescent lamp pretty much comes down to how much current you can ram through the filament, and lower voltages mean higher current. In turn, higher currents mean more heat in the filament so it gives off more light at a higher colour temperature – think about the difference between a 12V/50W MR16 and a typical household 60W bulb.

Out of the fixture the lamp looks somewhat outlandish with its disproportionately large ceramic base and contact pins, but who cares what it looks like – it's devastatingly bright and clear, crisp white. Selecon claim that



*The lamp base assembly is the only part that differs from any other Pacific*

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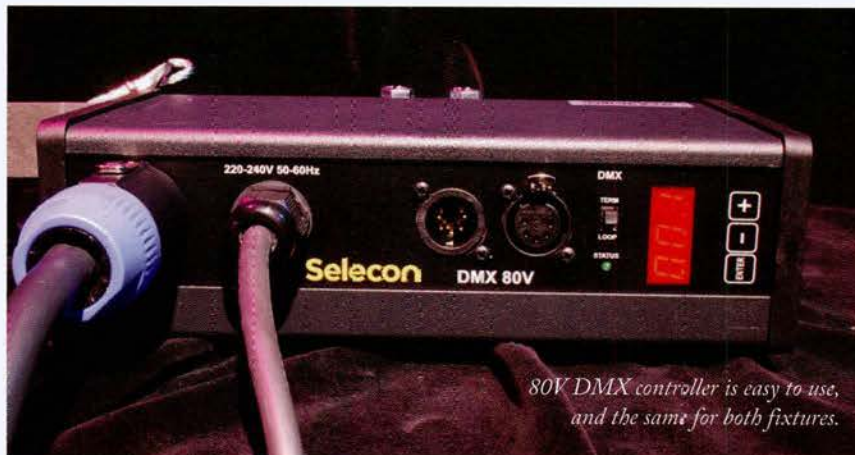
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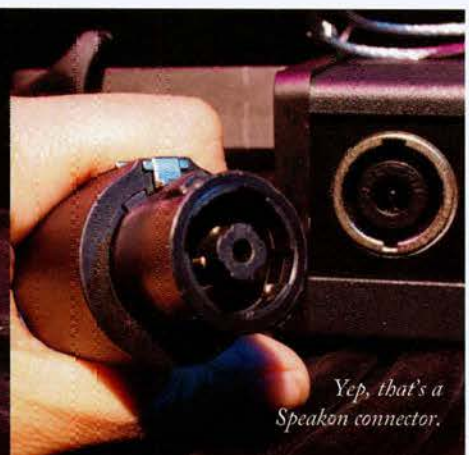


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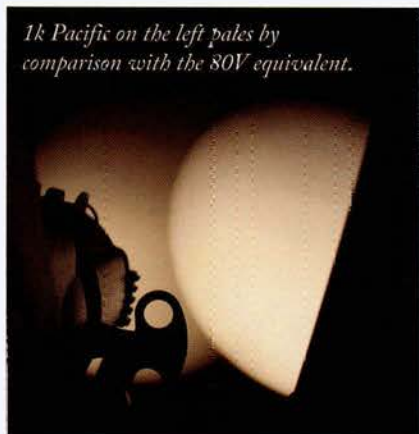
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*80V DMX controller is easy to use, and the same for both fixtures.*



*Yep, that's a Speakon connector.*



*1k Pacific on the left pales by comparison with the 80V equivalent.*



*The connector pins are enormous to cater for the high current.*

the light output is equivalent to that of a 2 or 2.5kW lamp and that the colour temperature is 3300K. I'm not going to get too scientific about this, but I hung the Pacific up next to an otherwise identical fixture with a 1k lamp in it, and the official CX light meter tells me that the 80V unit produces more than twice the lux while my eyes tell me it's visibly whiter.

## CONTROLLING THE BEAST

Obviously a system based on an 80V lamp can't be controlled by standard 240V dimmer systems, so Selecon have had to come up with their own answers on that front. What they've delivered is a dimmer module that hooks up to the lamp base via a high current lead. The unit can be controlled locally or by DMX, with DMX addressing being simpler than what you find in most DMX controlled fixtures (nothing else in the menu for it to get lost amongst) and is powered by a standard 240V supply.

One thing that struck me as slightly odd about this setup is that the connector used to hook the lamp up to the dimmer module is a Speakon NL8, which could potentially lead to some excitement if some clot plugs it into either a speaker or an amplifier. My guess is that the good

people at Selecon figured this was less likely than a Powercon going astray in the lighting rig.

There's also a version which takes its power supply and control signal from a standard dimmed 240V feed, so you can integrate it into an existing system. But I didn't have one of these to play with, so I can't comment on its effectiveness.

## PRACTICALITIES

There are a number of practical differences between the low voltage units and their 240V brethren. The first is the issue of what to do with the dimmer module – it needs to be right next to the lamp in order for the system to work. There is a facility for bolting the module onto the yoke of the fixture, or alternatively you can fit it with a hook clamp and hang it on the bar next to the light. While the first of these options is instinctively the most appealing, I've found myself leaning towards the latter simply because of the convenience of being able to shuffle the things about to let you hang the actual lights exactly where you want them (this is about the lights after all).

Second point is the need to get DMX into the fixtures. In most cases this is not going to be an issue, given that very few lighting rigs go up anywhere these days

without a few DMX controlled devices. In venues where this is not the case, particularly older theatres without any DMX links into the rig, there could be some inconvenience, but it's not huge.

Stacked up against these factors are some significant benefits, particularly in terms of economy. The low voltage lamps produce light output comparable to mains voltage lamps consuming twice the power – even allowing for the losses in the dimmer module (which are probably not that different from the losses in a conventional dimmer) this means a lot less power at the meter. For those who care it also translates to less emissions and a smaller carbon footprint.

The other big benefit of lower power consumption for more light is that it means less power is going as heat – reducing your air conditioning burden and power consumption. Good all round, really.

## CONCLUSION

These things are great. In terms of function, economy, colour temperature and every other parameter I can think of, I could happily use them to light every show I do forever. They're more expensive than their mains voltage stablemates – the Rama retails at \$1820.50 while the 240V 1k version goes for about \$850 and the Pacific is \$1710.50 without a lens tube vs the 1k at about \$600. Lens tubes for the Pacific are the same for either version and start at \$396 for common zoom versions, going up to a maximum of \$957 for the long throw 5/13 version. Fixed angle tubes are marginally cheaper. The cost may seem a lot at first glance, but then consider that for the extra money you're getting more light from fewer fixtures. In addition you're using less power to produce it, and you don't need a dimming system – in other words, spending more may save you money in the long run. Find out more at [www.seleconlight.com](http://www.seleconlight.com).



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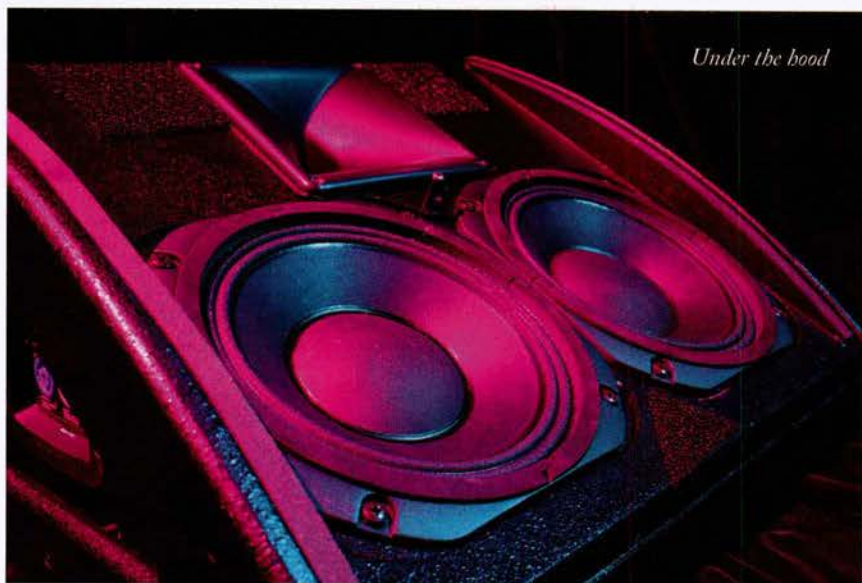
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# dB TECHNOLOGIES DVX-DM28

*Monitors have changed over the past few years. I learnt to EQ wedges using Aussie Monitor F300 boxes, which were good at the time but very much had their own “personality”. The trend lately seems to be to make monitors that just work well straight out of the box, and the DM28 is a good example of this.*



By JIMMY DEN-OUDEM

First impression of the unit is that it seems too lightweight to be taken seriously – especially considering there’s amplification hidden somewhere inside. Turns out that appearances are deceptive. Upon pulling the lid off it all appears to be reasonably well put together internally. The end panels are attached with hex bolts rather than just screws, and the little post between the drivers to prevent the grille from being crushed onto them is a smart idea. The class D amplifiers are hidden underneath the unit, recessed into the base and rated at 500W RMS and 250W RMS for the low and high frequency components respectively.

Inputs and outputs are located on the left side of the wedge in a recessed panel. Mains is supplied via a PowerCon connector with a loop through – this is a sensible choice for stage use as it’s less likely to come loose than an IEC. There’s no power switch on the unit. Audio input is as you’d expect on an XLR, with matching loop through provided. There’s an input attenuator, and LED indicators are provided for on, mute, signal, and limit. There’s also a switch to alternate between “monitor” and “full range” mode, which seems to be a very subtle high pass filter. The need for any controls on a stage wedge is somewhat debatable as they make easy pickings for prying punter fingers, but at least these ones are recessed and reasonably well out of sight.

The driver configuration of this box has not been widely used before, it’s a pair of 8” drivers coupled with an asymmetrical horn on a 1 3/4” compression driver (all RCF drivers). Meyer do an active twin 12” and horn, EAW do a passive quad 8” and horn, but the twin 8” is a new one –




Side connector panel

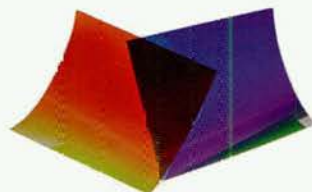
at least to me. The driver surface area of a pair of 8" speakers is roughly the same as that of a single 12", but with a more agile response. I like it a lot.

The quickest way we've found of checking a monitor out is plugging in a mic and mixer, and dialing it up. That's exactly what we did, and the DM28 quickly achieved a good solid vocal level with no trouble at all. Running with no EQ in line, it sounded pretty right – there's a little barkiness to it which is always good for a vocal monitor especially when you need to get over guitar amps on stage. You could probably pull even more level out of it with a little dip around 3K15, but the "no EQ" results were more than satisfactory for me. I like a vocal monitor to have a bit of body in the low-mid range, which this does successfully without being overbearing. It's present but probably not enough to cause that "low end swirl" which tends to wash off stages with lots of monitors.

It doesn't go down real low, but then I don't think it's designed to or it would be a different box. The DM28 definitely seems to be a vocal specific monitor, though in reality it would work well for many other applications (guitar, horns, mandolin, etc...). While I wouldn't use it as a drumfill, I'd comfortably populate the rest of my stage with them. If I needed serious amounts of level, I might opt for a pair rather than just a single.

All told, the DVX-DM28 is a nice box; easy to carry, easy to use, and it sounds good. Retailing at \$2,695.00, it's distributed by CMI Music & Audio – [www.cmi.com.au](http://www.cmi.com.au). 

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# ACOUSTIC TECHNOLOGIES TH750XA

*It seems that these days every loudspeaker manufacturer is required to make a powered plastic speaker system. This time around we found ourselves playing with the TH750XA, the flagship of Acoustic Technologies' plastic lineup.*



By **ANDY MACKENZIE**

**A**coustic Technologies are well established in the timber box section of the loudspeaker market, but plastic is a relatively new thing for them. Plastic boxes have a lot of benefits which have allowed them to become dominant in the small box market in recent years. Moulded enclosures can be made lighter and more robust than an equivalent timber box. They're also less labour intensive so they can be built more economically.

Add to that the convenience of having the amplifier on board and you've got a product that ticks a lot of boxes for a lot of people.

## FEATURE SET

AT's offering has some similarities to others in the same market sector, and also has areas of difference. Let's look first at the similarities. It's a two way system with a 12" low frequency driver and a 1" compression driver coupled to a horn for highs. But there are some differences here.

The horn is a separate device, not moulded into the enclosure, allowing

easy access to the internals. Both drivers are high quality neodymium units from B&C. As you would expect, the system is bi-amped and runs 350W RMS for the bottom end and 50 for the top – much less than the transducers are rated to cope with. The team at AT have done this to minimize distortion and power compression in the drivers and extend their lifespan.

The back panel offers pretty much what you'd expect too – there's a mic input and a line input, both on XLR and each with its own level control. There's also a master level control and a line output. Active and clip LEDs keep you informed of signal levels, and bass and treble controls round out the back panel picture. The bass and treble controls are rather higher powered than some others in the market and have a very pronounced effect, so it's a good idea not to go in too hard on them.

Rigging is straightforward, with a standard pole mount hole in the bottom of the box and five suspension points built into the enclosure (two on the top, one on each side and one on the bottom). The box has the usual angled back

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corners to allow it to be laid down as a wedge, and a handle you can use to pick it up.

So far, so similar. When everyone's answering the same question, we shouldn't be surprised if they come up with the same answer.

### WHAT ABOUT THE SOUND?

The biggest area of difference between the TH750XA and many of the other products in this market sector is the way it sounds. Where many of its competitors have a harsh, bitey top end, the AT box is subdued. This was a very deliberate decision on the part of the development team at AT, and it involved a lot of R&D. Vocal intelligibility is good and the box has a hi-fi kind of sound.

The TH750XA is voiced to fit with the rest of the AT range, and this should surprise no-one since these guys build their boxes to have a flat response which is pleasant to listen to. While some people, particularly those intending to use it as a wedge on a loud stage, may want to boost the high mids a bit for extra cut there will be a lot of others who appreciate the less obtrusive and less fatiguing nature of the sound.

Given that one of the largest target markets for a box of this type is the driveway hire/musician's PA sector, where EQ skills are not always what you would expect from grizzled industry professionals, the less aggressive top end is also likely to pay dividends in the reduction of sudden howls of feedback while the band are getting set up or Uncle Barry's doing his speech.

### BUILD AND FINISH

The TH750XA is solid. Really solid – I'm pretty convinced that if I was to drop it down the stairs it'd come up smiling. The design of the cabinet means the connector and control panel is shielded from most impacts, so it should cope well with the rigours of the road.

Finish quality is exactly what you'd expect from AT – it's put together well and looks good. A layer of foam behind the grille means the drivers aren't visible, a good thing given the potential for this box to be used in applications where an unobtrusive look is preferred.

### AND THE PRICE?

A retail price of \$1895 parks the TH750XA bang smack in the middle of its market sector, and seems a fair price to pay. I'd be inclined to say that anyone buying these is going to get their money's worth and probably keep getting it for a long time. For more information, go to [www.atprofessional.com.au](http://www.atprofessional.com.au), but don't be surprised if you can't find it on the website – it's really that new. Send them an email. They'll be happy to help out. **CX**

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Audio Telex..... 41	Julius Events College..... 69	Setwear..... 74
Radiotech Systems..... 13	Lighthouse Distribution..... 19	Soundcorp ..... 17
Awesome Technology ..... 35	Matrix Productions ..... 74	Spec. Stage Eng. (SSE)..... 53
BS Sound ..... 74	Meyer Sound..... 5	Staging Rentals..... 74
Bytecrafft ..... 31, BC	Mobile Image..... 73	Subscriptions ..... 65
Cases.com..... 54	Murray Tregonning..... 25	Syntec International ..... 9,23
Chameleon Touring Co..... 38	National Audio..... 33	TDC..... 47
CMI ..... 59	Norwest Productions..... 20	Technical Audio Group ..... 7,49
Corporate Theatre..... 74	Production Audio Systems..... 34	The Resource Corp..... 71
Ear Monitors Australia ..... 39	R & R Recordings..... 72	Yamaha..... 15,51
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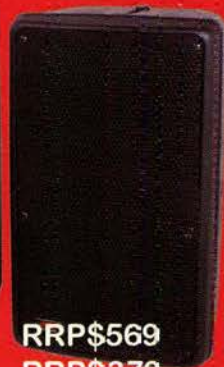
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