

Connections

PROFESSIONAL AUDIO & VISUAL TECHNOLOGY

JANUARY 2003 Australia \$4.90 / NZ \$6.50

• ONSALE UNTIL FEBRUARY 28, 2003

10TH BIRTHDAY EDITION

FINAL ISSUE OF CONNECTIONS. LOOK FOR CX MAGAZINE IN MARCH

Print post approved:
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- Malaysia 36r
- Thai 250bt
- Sing \$10
- HK \$45
- Other: US \$7

Juliusmedia ▶

See Breaking News at www.juliusmedia.com

ISSN 1320-5595



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A woman with voluminous curly hair is singing into a microphone. She is wearing a light-colored, beaded halter-neck top and matching shorts. The background is white with numerous blue feathers falling around her.

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to supply the best audio equipment - and to support you in
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Management and staff at EVI Audio say "Thank You" to our
wonderful dealers and users for their invaluable and continued
support.

We also take this opportunity to congratulate "Connections" for their
tremendous contribution to the industry over the past decade.

With the end of an era and the start of a new one we look forward to
the exciting new CX Magazine and very prosperous 2003 for all.

 **KLARK**TEKNIK

TELEX.



 **MIDAS**

EVIAUDIO  **Australia**

www.eviaudio.com.au

Welcome!

Connections hosts industry endorsed technical training for Stage OH&S, Performance Lighting, and Live Sound. For 2003 we offer our acclaimed short courses in all major capital cities, plus we are pleased to offer a pathway to a career in entertainment technology with our new Certificate III courses. *Certificate III is the proposed minimum qualification for a stage technician in the performing arts industries.*

We believe technical training needs to be hands-on, with modern equipment. We seek and obtain feedback from students and industry, to continually improve our course content. Our courses deliver modern, efficient, accelerated training with real learning outcomes!

Course production equipment in 2002 came courtesy of Chameleon Touring, CLS, Lots of Watts, McLean Audio Services, Coda Audio, Bytecraft and TPAC. *Our presenters are highly experienced technicians.*

About Connections Technical Training:

Juliusmedia is the new name behind our training arm, Connections Technical Training. We own Connections Magazine - the entertainment technology trade journal - and ENTECH trade show. For 2003, Connections is reborn as CX magazine.

Courses

Courses are held with the support of leading venues nationwide, including the Victorian Arts Centre, and Parramatta Riverside Theatres.

COHS: Stage occupational health and safety. *One full day.*

CPLX: Connections Professional Performance Lighting Induction. *5 days.*

CPAU: Connections Professional Live Audio Induction. *5 days.*

(Our Induction courses CPLX or CPAU include the one day COHS course)

Certificate Three

We now offer a Certificate Three in Lighting, or a Certificate Three in Live Sound. These are drawn from the Entertainment Industry Training Package. This is a nationally recognised qualification.

C3LX: Cert. III in Lighting. *Part time, concludes July '03 & Jan '04.*

C3AU: Cert. III in Live Sound. *Part time, concludes July '03 & Jan '04.*

Certificate III Program

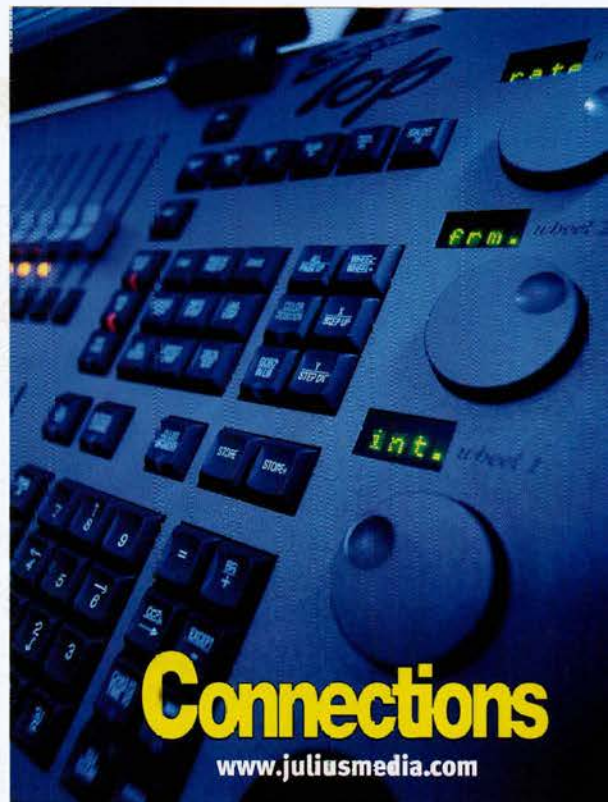
We now offer a Certificate Three in Lighting, or a Certificate Three in Live Sound - drawn from the Entertainment Industry Training Package - a nationally recognised qualification. We deliver accelerated learning. To achieve a Certificate III, here is what you need to do:

- **COHS** (Stage occupational health and safety)
- **CPLX** or **CPAU** (Professional Lighting or Live Sound Induction course), in any state. (5 days, incl. COHS)
- **C3** Term one, in Sydney. Course dates: April 22 - 26.
- Course work, site visits, obtain first aid ticket in your state.
- **C3** Term two, in Sydney. Course dates: July 7 - 11.

At the conclusion of training you will be assessed by a Registered Training Organisation for the issue of a Nationally Recognised Qualification: a Certificate III in Lighting, or a Certificate III in Live Sound.

Already skilled? Talk to us about RCC or RPL assessments.

Call Julius Grafton on 1-800-635-514.



Australia Wide
First half, 2003

Technical Training

* Denotes school holidays. Prices inc. GST, AU\$

COHS: One full day, 9am - 5pm. Cost \$150
Usually runs on Monday, except Sat. Feb 15

Sydney *Jan 13. Feb. 15. *April 13. *July 14.

Melbourne *Jan 5. April 7.

Brisbane *Jan 20. *June 30.

Perth *April 28.

CPLX: Five full days, 9am - 5pm. Cost \$650
Usually runs Monday to Friday unless noted.

Sydney *Jan 13 - 17. *April 13 - 17.

*July 14 - 18

Part time: Saturdays 9am - 5pm:
Feb 15, 22, Mar 1, 8, 15

Melbourne *(Sun) Jan 5 - (Thurs) Jan 9.

April 7 - 11

Brisbane *Jan 20 - 24. *June 30 - July 4.

Perth *April 28 - May 2.

CPAU: Five full days, 9am - 5pm. Cost \$650
Usually runs Monday - Friday unless noted.

Sydney *Jan 13 - 17. *April 13 - 17.

*July 14 - 18

Part time: Sat Feb 15 all day,
then Monday nights 6.30 -
9.30, Feb 17, 24, Mar 3, 10, 17
and 24. Plus all day Sat March
15th.

Melbourne *(Sun) Jan 5 - (Thurs) Jan 9.

April 7 - 11

Brisbane *Jan 20 - 24. *June 30 - July 4.

Perth *April 28 - May 2.

CERTIFICATE III PROGRAM: Full program
cost is \$2,900 including CPAU or CPLX.
Cheaper with advanced entry, or with RCC or
RPL assessments.

• Do CPAU or CPLX, in any state, then
attend:

Sydney *April 22 - 26, plus: *July 7 - 11.

Deposit of \$316 secures your Cert. III
program space.

Professional Live Audio Induction

5 DAYS. Sydney, Melbourne, Brisbane, Perth. Cost: \$650. REF: **CPAU**

Who should do this course? You do, or wish to, work in any performance environment. These include theatre (corporate and traditional), events, presentation, concert, club, live music and touring. Perhaps you are serious about volunteer work for your school or House of Worship. You want a good basic working knowledge of live audio techniques and equipment and the methods utilised. *You demand experienced, professional instructors.*

Join us for a practical, hands on training course, using modern equipment.

We include several breakout sessions for beginners, allowing revision and assistance with any concepts that appear too complex. Audio training can appear daunting!

Experienced participants, beginners and people of all ages can benefit from this course. We put our new experience to work and mix a live performance at the end of the course. Go to www.juliusmedia.com for a list of course modules.

This course also includes one full day of Stage Occupational Health and Safety training (COHS). This course forms PART of our Certificate III in Live Sound. You can articulate up to a Certificate III course later!

Professional Performance Lighting Induction

5 DAYS. Sydney, Melbourne, Brisbane, Perth. Cost: \$650. REF: **CPLX**

Who should do this course? You do, or wish to, work in any professional performance environment. These include theatre (corporate and traditional), events, presentation, concert, club, live music and touring. Perhaps you are serious about volunteer work for your school or House of Worship. You want a good basic working knowledge of performance lighting, equipment, and the methods utilised. *You demand experienced, professional instructors.*

Join us for a practical, hands on training course, using modern equipment.

Experienced participants, beginners and people of all ages can benefit from this course. Go to www.juliusmedia.com for a complete list of course modules.

We put your experience to work, and light a performance at the end of the course!

This course also includes one full day of Stage Occupational Health and Safety training. This course forms PART of our Certificate III in Lighting. You can articulate up to a Certificate III course later!

Stage OH&S course

REF: **COHS**. Cost: \$150.

One full day. *With statement of attainment on completion.* "Everyone working on stage should do this course".

See www.juliusmedia.com for testimonials!

This course is offered as a stand alone course. It is also part of our CPLX, CPAU and Certificate III - you can articulate upwards with this qualification!

Sydney Jan 13. Feb. 15. April 13. July 14.

Melbourne Sunday Jan 5. Monday April 7.

Brisbane Mondays: Jan 20. June 30.

Perth Monday April 28.

◆ **MORE INFO, COURSE BOOKINGS:** call 1-800-635-514, or go to www.juliusmedia.com



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Connections

This issue covers December, January and February.

New magazine to replace Connections

WATCH FOR CX MAGAZINE, STARTING IN MARCH

This issue of Connections is the last as we know it. This magazine will be replaced in March by CX Magazine. It will be published each second month.

CX will cover similar ground, but offer a fresh new perspective. CX will be edited by Julius Grafton, the founding editor of Connections, returning to the editor's role.

We now have a complete internet live news site - www.juliusmedia.com - integrated with our new magazine, CX.

What this means to Subscribers

Your subscription continues and is unaffected. You will receive all the issues you ordered. If your Connections sub was for one year, you get 11 issues. 2 year subs get 22

issues. *All existing subscriptions run longer, as the magazine comes out less often.* We will recalculate your subscription renewal date and write to you during January.

No more NEWSAGENT SALES after March

AFTER the first issue of CX Magazine, (March-April), we will trial non newsagent distribution in favour of direct trade industry outlet sales, and subscriptions.

Readers who currently buy Connections from newsagents are urged to subscribe, by calling 1-800-635-514. *Subscribers also get news by email — as it breaks!*

New subscription rates are A\$31 (Australia), A\$43 (NZ), A\$48 Asia and A\$66 Euro-USA for one year - six issues.

**NEW! INDUSTRY NEWS AT
www.juliusmedia.com**

Questions? Feel free to call us on 1-800-635-514 or +61 2 9876-3530



This is the new name for the company behind Connections Technical Training, CX Magazine, and ENTECH. Our new website arrives next year, www.juliusmedia.com

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Connections

The Asia/Pacific Professional Audio and Visual Technology Monthly **Dec '02 - Feb '03**

Chili Peppers roof fails, show moves

Setting up for the concert, and a 'cracking' noise says it's all over. Work stops. What now?

The Red Hot Chili Peppers concert at Hindmarsh Stadium in Adelaide (Tuesday 3 December) was moved at the last minute to Adelaide Entertainment Centre. The previous night as riggers flew up show equipment, a loud popping noise was heard from the stage roof. A crucial structural member failed.

Australian production manager Wayne Skals was told by riggers that the stage roof was not useable.

A frantic relocation was scheduled, with all departments working to get a condensed show into the Adelaide Entertainment Centre. In true show business style, the show did go on.

Promoter Michael Chugg told Connections that people with reserved 'premium' seating were reallocated to the best seats in the

Entertainment Centre. "We put up signage, it wasn't too hard to arrange", he said. "But it was stressful for a lot of people".

Adelaide Entertainment Centre manager Pamela Del Nim told us that the centre got the call at 1.30am on Monday. "One of our production people, Ben Jones, had been seconded to Hindmarsh. He was asked if we could run the show that night, and by 2.45am we had agreed. Then the Chili crew came over and had a meeting to plan it".

A major stumbling block would have been the ticket sales. "If they had sold over our limit (12,000), we wouldn't have been able to run it. It would have been too dangerous".

The incident cost more than \$110,000.

Full story: go to www.juliusmedia.com news

• Also see Chili Peppers Production, P.40

Monitor mixing with Yamaha DM2000's

Yamaha didn't really think anyone would use their new DM 2000 digital mixer for serious stage monitor duties. Until John Farnham purchased two for his eight month long tour. John Henderson (left) is in charge of stage monitors, Bob Daniels operates the second DM 2000. Our Farnham story starts on page 32.



INSIDE

d+b audiotechnic

Getting to know the top

German PA brand: P 16

Where now for Vari-Lite? The brand is sold off. We go inside Vari-Lite and report. Page 18

Garry Kayye's AV Predictions

He is usually always correct! Page 21

Mastering for beginners

Great tips! Page 24

John Farnham's Last Time tour

Lights - Sound - Vision! P. 30

Red Hot Chili Peppers

The art of the sound, the art of the lighting. In depth! Page 40

Market Report: Big PA speakers

Huge index. Starts page 44

Projector shootout

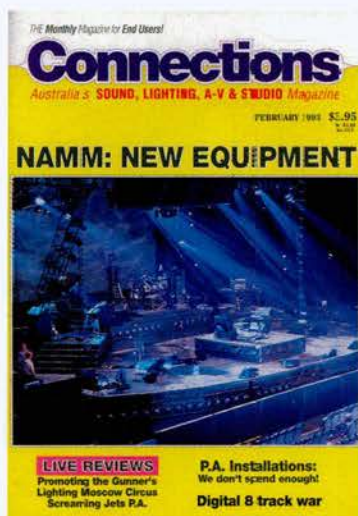
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Lighting Control Market Report

All the consoles. Page 54

Studio Tracking Guide

With Studio Awards! Page 62



In the first issue of Connections:

• Digital 8 track war

Yes, for 10 grand (equal to about \$25,000 today) you could try to buy an ADAT, but Alesis had trouble keeping up with demand. Tascam were showing a prototype DA88, known then as the DA80. We speculated Sony would release a product into this sector - and they did. It was a re-badged DA88!

• Guns and Roses

Headed 'Perils of R & R Decadence, we wrote the story on deadline from an outdoor gig for 60,000 at Eastern Creek. It was the beginning of the end for festival shows, because of the massive costs of infrastructure.

Naturally the band were very late onstage, following a pattern of disregard towards their fans.

In a weird parallel, at presstime the recently reformed Guns and Roses were cancelling shows in the USA without apparent reason.

• AES industry awards

The local arm (we were in trouble for calling it a 'chapter') of the Audio Engineering Society were planning their 1993 convention. Connections fell out of favour with the AES when ENTECH became the trade show of choice for the audio industry. The AES appear to remain unimpressed, which is a shame because we respect what they do.

• Getting on the road

We visited Dallas and attended a conference where a bunch of tour managers talked about their gigs. It made a great read. They lamented the lack of female tour and production managers. Nothing has changed on that front.

Reflections from Connections # 1

Dud predictions, woeful pictures, bad spelling. It was a hit!

The first issue of Connections (pictured at left) featured appalling print reproduction. The spelling and grammar was very unprofessional too, generating letters of complaint on a regular basis.

But the mag was eagerly accepted.

It was created with a terrific lead up from Channels, the Jands magazine that Julius Grafton edited for two and a half years prior. Channels had managed to press quite a few buttons, and had a dream run due to lack of any publishing alternative. Jands sold the Channels distribution database and rights to us - without that, we couldn't have started Connections.

Back in the early 1990's there was virtually no internet, email was limited to Compuserve and a few niche providers, and the mobile phone was only just starting to take hold.

Industry types really wanted a magazine, so Connections had a huge welcome. It was almost like putting a band together and having a hit album.

Our industry was also slowly emerging from a very cruel recession, born from inflation of over 10% and interest rates well over 18%. The state of Victoria was worst hit, and people were just not spending money, unemployment was approaching 11%.

We published the first issue on a Mac II CX with a 68000 processor and a mono screen. The colour elements were created elsewhere - and there weren't too many of them. Most of the mag had two colours.

We used Pagemaker 4, and indeed still use Pagemaker 5 to lay this magazine out. All our images were flat scanned from photo prints and then output as a bromide, pasted on to the laser printed page, then a plate was made for printing. It was utterly dreadful!

Connections started as a partnership, and when that suddenly and acrimoniously ended in 2000, the business needed rapid restructuring. John Grimshaw had just started full-time as a technical writer, and was told he was to be the next editor.

FEARLESS, FLAWED OPINIONS

Some fearless predictions from Issue Number One, 10 years ago just plain didn't happen.

Let's look at them:

• NEW LONE WOLF AUDIO CONTROL PROTOCOL WILL TAKE OVER

Media Link was a start up company in Seattle, who proposed "an extremely powerful open-standard network system that the big US manufacturers are jumping all over to incorporate into their products".

We said that this wasn't great news for

Crown, and that this vital new technology would become indispensable.

OUTCOME: Gee we wish we didn't put that underline on 'WILL'. Australians gathered at the first ENTECH to see the great demo. Famously the prototype crashed in front of the who's who of the biz, and it was downhill real fast from there. Chastened, Julius flew to Seattle to see for himself, and had a strange meeting with The Founder of Media Link in his trendy loft apartment/studio/bonkpad (select one) above the harbour. His main point that weird night, was that just over there, just behind THAT THERE DOOR, was an original genuine antique Crapper. (!) (¿)

Yep. While the company went down the toilet, he was fixated. On the toilet.

• PEAVEY WILL BE # ONE IN PRO AUDIO

"I expect Peavey to be number one in Pro Audio soon", said Bob Pabst - the president of Mark IV Audio at the time. Julius took this comment to NAMM and attended a Peavey dealer conference, disguised as a guitar shop proprietor from Detroit.

Sure enough, he reported: "I seriously doubt anyone in the audio industry has a dealer culture like Peavey". There were 80 new products in the pipeline. It was all so good. And we said so.

OUTCOME: Peavey purchased Crest, tried to buy EAW, and possibly because of their focus on the 1,300 music stores that sell their product, never really made huge inroads into pro audio. The one big exception: Media Matrix, which has sold *extremely* well.

DOLLY ROADBOX GETS FIRED

Our first and last social columnist barely lasted an issue. Poor Dolly wasn't quite attuned to the industry, and was quietly sanctioned as a result. Maybe it was the pictorial content? Our first issue had Dolly visit the ladies convenience at the LA NAMM show, photographing a couple of startled young women - caught in the act of applying the lippy. Not really relevant, huh?

The Dolly Roadbox page featured pictures of young women, ostensibly associated with the industry in some way.

Most controversially, Dolly ran a picture of three young ladies named as Yolanda, Lynn and Dana who were (ahem) working girls. They were sitting in the hotel bar at the Annahiem Hilton during the NAMM show, waiting for Mr. Right. Many readers didn't like the picture, particularly because Yolanda was licking her finger in a strange way.

Dolly was quietly retired. We think she went on to work on Who Weekly.

Connections Editor says farewell

John Grimshaw says much has changed in the industry

Well, it has been an interesting two and a half years being the Editor of Connections, but now it is time for me to take on a different role here at Juliusmedia. This is my final issue as Editor. As you read this, we will have begun the process of a massive overhaul. Next stop for our presses will be the launch of a new look CX Magazine next March.

It certainly will be nice for me to go back to writing the occasional article, and to be free of the relentless deadlines. However, my time as Editor has been an enjoyable rollercoaster through the back alleys and front foyers of Australia's production houses, venues and equipment distributors.

The industry has certainly evolved over this short time, with OH&S and insurance driving the industry into safer work practices, technology in live audio making some amazing changes to the quality of live sound, and lighting automation becoming more accessible to the production community.

It has also been amazing to be privy to some of the technology leaps that, at the time, were yet to make it into production (including Catalyst, Yamaha PM1D) as well as getting to preview or access some of the biggest shows (including Olympics, NYE in Sydney) this country has staged.

My opinion is that our industry has matured significantly. Many companies trading today are more robust, better managed and better staffed than has been the case before. I think we are all now much more wary of the producer that lives to gouge the profits out of a show. A few years of tight economic outlooks can do wonders for strengthening the existing players, but it does make it harder for new players to enter the market. Hopes at the beginning of the year for a good and busy 2002 seem to have been achieved. Many companies I talk to say that while this has not been a "great" year, it has been "good enough", and there is every indication so far that 2003 will be able to build on this.

I also think that we need to make sure that, as an industry, we invest in and encourage new technical talent. This is the reason why I decided to move into the training area – to try and actively build on what I consider to be a significant shortfall in our industry.

2003 will see me move into the new position of "Director of Training" here at Juliusmedia as we ramp up our training courses to deliver in many more cities. Just to make sure I don't get too relaxed in my new role, I will also be managing www.juliusmedia.com (if you haven't been

there yet then you won't have the latest industry news!) as well as writing for the new magazine.

A special thank you to the people out there that have helped make my job of getting and writing these stories so much easier.

Journalists may not be the most reliable bunch in the general media, but I was a technician before I was at Connections, and I still consider that to be my primary skill. It has always been my position to make sure that Connections maintained its integrity on any issue, and if there is any criticism of what we do, to make sure that gets a voice as well.

My young, upstart replacement (Julius) will be back at the editorial helm for the new mag. I would wish him all the best, but he KNOWS what he is getting into, having been the first and only other editor.

Finally, a thank you to the readers that have mailed, faxed, emailed and talked to me over the last two years. Be it criticism or praise, your support of this magazine has allowed us to present yours and many other voices to the rest of the industry. Your contributions are highly prized by me, just as they will be by Julius.



John Grimshaw, departing editor.

• Juliusmedia is the new name for the organisation that publishes CX Magazine each second month. It also runs Connections Technical Training, and the ENTECH Trade Show. ENTECH will next run from April 5, 2004.

New/old editor logs on for CX

I am really looking forward to annoying and entertaining people from that scorched editor's chair again! My prior stint as editor acquainted me painfully with Australia's tough defamation laws.

Poor John Grimshaw quickly found out just how utterly thankless the job can be. He got little praise, and plenty of aggro. It takes a certain kind of personality and confidence to do this job without being arrogant.

I think I was too arrogant for a while there. I presided over the amazing days of Channels - which grew like crazy - and then the first four years of Connections, which were almost out of control.

It was 1996 when I fell to earth. I was sitting in a plush office suite in a high rise, with ten staff and 14 computers. Jenny Royal came in with the cash flow forecast and told me we would be broke by Christmas. Oops. Scream!

I consider myself part of the entertainment technology industry, more than part of the media. I've got a passion for the craft of a show, the tracks of an album, and the bits of an event.

I really enjoy training people - our new venture at Juliusmedia.

One of the strengths of Connections is our ability to hold ourselves open for analysis. **We've always published valid criticism.**

My 30th anniversary in the biz is next March. I'm 45, and I hope you'll let me put in another 30 years. (Maybe by then my spelling will be slightly improved!)

- Julius Grafton, Editor of CX



Australian Audio Supplies and National Audio Systems Announce Pact

Australian Audio Supplies has announced it has entered into an arrangement with National Audio Systems to distribute Mackie's Installed Sound products.

This agreement sees **Shane Bailey**, who has been overseeing the range for AAS, move to NAS to continue to support these products.

Dave Croxton, Managing Director of AAS made the following statement "Australian Audio Supplies has experienced very strong growth over the last three years with the expansion of the Mackie product range, we are now looking to our consolidate our position".

"Our real strengths are in the retail sector and we want to maintain our focus on this market. NAS is a growing company, focusing on the installation market and will grow Mackie's Installed Sound range accordingly. I look forward to working with them to continue to grow the Mackie brand in the Australian market."

Managing Director of NAS, **Peter Holland** added "This is an exciting opportunity for NAS and we look forward to working with AAS in the ongoing development of the Mackie Industrial range. The diversity of each company's strength in the market makes for a great synergy and we are sure it will be a win, win situation for all concerned, including of course, our valued customers!"

• **Call Australian Audio Supplies: +61 3 9431 3199 or Shane Bailey at National Audio Systems on +61 3 9434 1888.**

LSC dimmer bug squashed

LSC Lighting Systems has released software version V1.31 for its range of "e" and "i" Series of high performance entertainment based digital dimmers. These include the popular ePAK, ePRO, iPAK, iPRO dimmers and the e24 dimming system.

Version 1.31 provides a bug fix to cure a random flicker problem that can be seen in some dimmers. The bug was caused by a random conflict inside the software and was exacerbated in dimmers with a high DMX address setting. It was a particularly difficult bug to find. The effect was to read a DMX packet incorrectly on a random basis.

If the dimmer was driving high wattage lamps then the brief change in intensity often would not be seen. If the dimmer however was driving relatively low wattage (responsive) lamps then the effect became noticeable particularly in static lighting situations.

This latest release has cured the problem totally and it is highly recommended that all users of LSC "e" and "i" Series dimmers update to this latest version.

LSC has taken the opportunity of this software release to incorporate new features for the new e1220 dimmers and as a result, the cooling profile for the other dimmers has also been improved.

Updating software to LSC dimmers is easy. Software is available as a download file from the LSC website at www.lslighting.com.au/software/eDIMsoftware. A special program called eLINK is required to transfer the software from a personal computer into the dimmer via a RS232 link on pins 4 and 5 of the DMX input connector. The eLINK software, installation information and details of how to make the eLINK cable are also available as downloads on the website.

If any problems are encountered during software upgrading, contact LSC direct or your nearest LSC distributor.



Martin's New DMX Addresser

The new Martin DAD (DMX Addressing Device) is an easy-to-use tool useful in reading and changing the DMX address on any supported lighting fixture.

It is not necessary to configure the device to any specific fixture. The DAD simply recognizes the supported fixture automatically, meaning any installer will be able to use the device without prior instruction.

The DAD currently supports the following Martin outdoor fixtures: · Exterior 200 · Exterior 600 · Exterior 600 Compact · FiberSource CMY 150.

• **Info from Show Technology, +61 2 9748-1122, go to www.showtech.com.au or see www.martin.dk**

LETTERS

Many thanks for all the kind letters of support, and suggestions for the new CX magazine we have received. They are too numerous to publish. It also goes against our philosophy to run nice, puffy letters about our magazine.

Other letters received this month have found their way into the FORUM section of our new internet news site.

Go to www.juliusmedia.com and see FORUM for more letters on Test and Tag, and some interesting feedback to other news on the site.

LETTERS PLEASE! mail@juliusmedia.com

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Sennheiser debut clever conference system

Every installation designer knows the scenario - meetings that need audio. Sennheiser have weighed in with a sophisticated solution with their SDC 3000 System. This is a modular, software controllable solution where flexible numbers of delegates need two way communication and even electronic voting capability.

The Delegate unit seen at right in front of each person has a gooseneck electret mic, with a neat red LED ring - presumably to make the small mic visible. The mic is optimised for speech in a 300mm radius, and the unit has a quality speaker in the base which is muted when the mic is on.

It comes with buttons for voting, and for mute or various other functions set by software,

Up to 600 stations can be joined, and all system components can be bit plugged. Any delegate unit can be configured by SDC Software as a chairman's unit (with up to 4 chairmen). 11 interpretation channels can be connected to an infrared system via a SUB-D socket.

Best of all, up to 6 speakers can be allowed to speak at the same time - that's democracy for you!

A really cool feature of the SDC control software is that it will display a list of delegates who have requested to speak, and a history. It has Speaker Limit, and speaking time remaining features too.



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Jands joins Art-Net Alliance

Jands Electronics, manufacturer of a leading range of lighting consoles and dimmers for the entertainment industry, is the latest manufacturer to join the Art-Net Alliance.

The purpose of the Alliance is to promote the wide-spread adoption of the Art-Net Ethernet Standard. The Art-Net Alliance with the inclusion of Jands is now truly a global network.

From their Australian base Jands supports a global customer network.

"Supporting Art-Net will ensure that we maintain our position as a supplier of leading edge products. The features offered by Art-Net will ensure our users continue to have access to the latest lighting data transmission tools," Paul Mulholland Managing Director of Jands told us. "We look forward to implementing Art-Net in future generations of our products."

The Art-Net tools package keeps growing weekly. An innovative range of hardware and software packages has been developed by not only Artistic Licence the inventor of Art-Net, but also by members of the Art-Net Alliance. Software tools include riggers remotes, network configuration and monitoring packages while hardware products range from powered hubs to uplink and downlink products.

• www.ArtisticLicence.com

Racecall PA nightmare tamed

During a race call, in around sixty seconds the race caller may mention each of the eighteen or so horses two to three times, with speech rate and volume reaching a crescendo towards the race finish. Combined with high background noise levels of around 90 – 100dB on an average race day and sometimes over 100,000 screaming punters, Flemington Racecourse is one of the most demanding environments for a sound system, with speech intelligibility being critical.

Now with the addition of audio-visual presentations and music reproduction along with extra events such as fashion parades to attract wider demographics, the performance pressures on racetrack sound systems are ever increasing.

Bose and contractor Monaco Sound recently installed a new sound system in the Hill Stand at Flemington. The installation was completed in time for the Melbourne Cup / Spring Carnival.

"Previously, when the sound system was unclear, it was a downward spiral", said Bill McLean of Racing Victoria. "The volume was cranked up only further increasing distortion. People close to loudspeakers, or who were trying to socialise, then found the sound irritating and it got to the point that people were turning the speakers skywards, then of course the punters couldn't hear the call."

The brief for the new sound system was to

achieve high speech clarity so the serious punters could hear every word. However, a balance was needed, in that the sound system was to operate at only 5-10dB above background noise so other patrons could comfortably maintain conversations.

System design was carried out by Bose Engineers using the Bose Modeler program to propose a system in which speech transmission index (STI) was paramount.

Bose Systems Engineer, Jeffrey Bowler, predicted STI's in the range from .62 to .83 throughout the various acoustic spaces using Bose LT's (Long Throws), 402's Model 32's and Model 32SE's "This combination of loudspeakers produced extremely

good STI ratings at high sound pressure levels as was required for this application", said Ray Walsh from Bose.

The acoustic effects of the various audience areas were able to be accurately predicted taking into account sound reflections, reverberation, speaker coverage patterns, sound pressure levels (SPL's) required, as well as the speech intelligibility.

"Most of the challenges were overcome using the Modeler program," said Terry Partridge of Monaco Sound. "The major advantage is that it offers an accurate representation of the performance of the working system as well as equipment requirements, thus allowing the client to confidently commit to a contract. The Auditor system was also used, so the client (VRC) could listen to the proposed sound.



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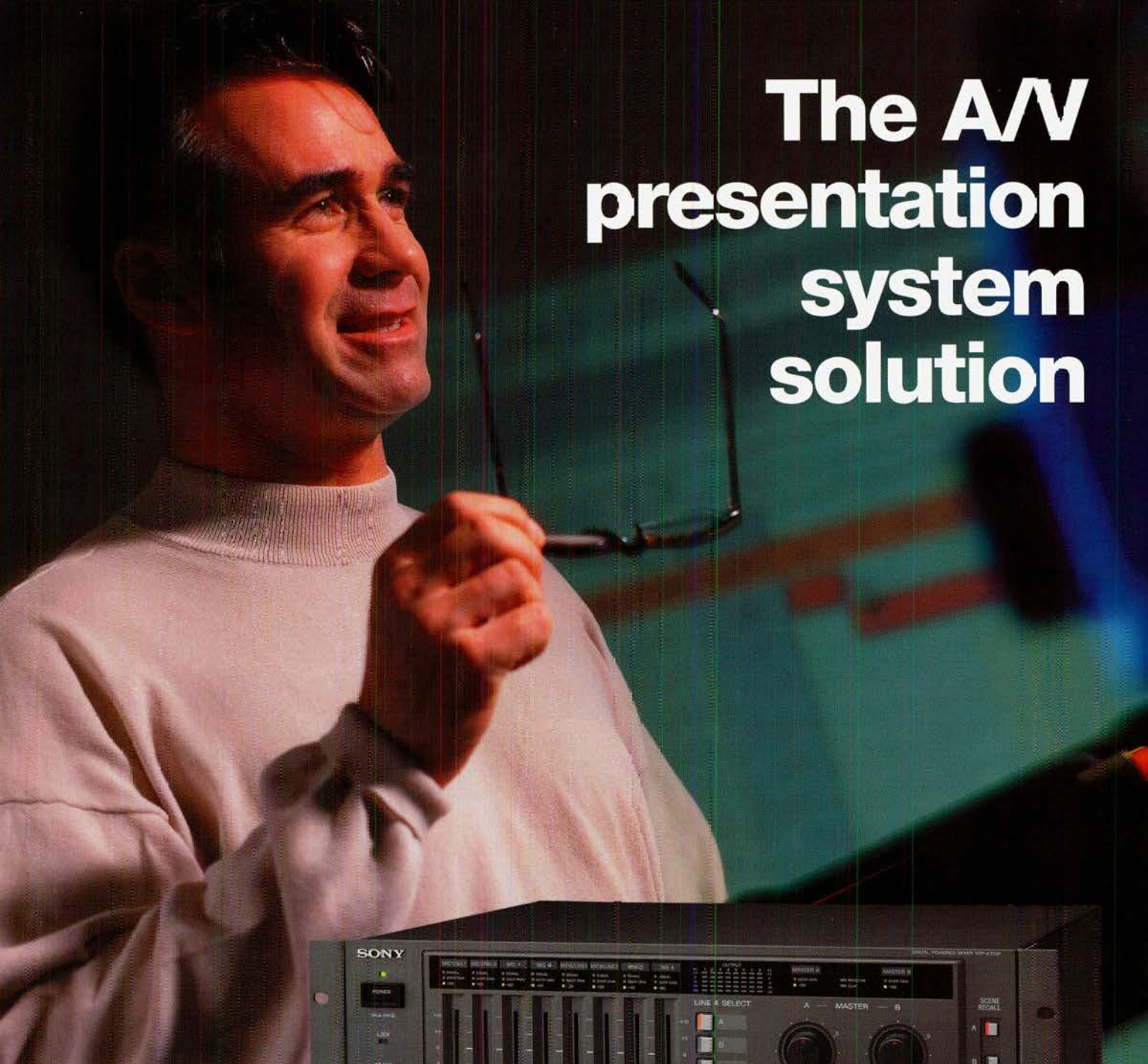


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CDA are offering free courses in Sydney, Melbourne and Brisbane during February.

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Yamaha Debuts MSP10 Studio Nearfield Monitors

Designed for professional applications, the MSP10 Studio takes over where its predecessors left off. It boasts significant refinements to both the midrange performance and crossover parameters.

The MSP10 Studio features a bi-amped design. The 4-ohm 8" cone woofer is driven by a 120-watt power amplifier; the 8-ohm 1" titanium dome tweeter has its own 60-watt power amplifier. A high frequency integrated waveguide achieves dispersion over 120 degrees—ideal for surround monitoring.

Line-level electronic crossovers feature steep 30 dB/octave roll-off curves in both low

and high-pass filters. The result is minimal inter-modulation at the crossover point, and a significantly smoother performance in the critical midrange.

"Today, high sample rate digital source material and ultra-accurate reproduction media are rapidly becoming the norm," states Mark Amory, National Sales and Marketing Director, Yamaha Professional Audio.

"Nearfield monitor technology must, in turn, evolve in order to rise to that quality".

• www.yamaha.com/proaudio.

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d+b audiotechnik seeking to know you

Leading German PA manufacturer have a slightly different approach

d+b audiotechnik is the last of the big name European loudspeaker manufacturers to find distribution in the region. The German firm are very prominent across the continent, and their brand is on many riders and installed in plenty of major venues up there. But in Australasia it is not so well known.

Peter Holland's National Audio Systems have a three year plan to change that, and are engaged in a lot of footwork to get the brand better known here. In recent times Funktion One, L-Acoustics and Nexo have achieved recognition and decent sales, while Turbo and Martin have had strong representation for the past decade. Martin are the leading non American brand of PA loudspeaker in Australia, judged by dollar turnover.

Now it's time for d+b to garner some business, according to Peter.

NAS held seminars across the eastern states of Australia last month. Ralph Zuleeg, an engineer from d+b, conducted demonstrations and went through the theory behind sound reinforcement as it is applied at d+b. They have a simple philosophy on how to sell loud speaker systems, which is "Let people listen to them".

But it is hard, when every second person asks what it costs, says Michael Prestipino from NAS. d+b certainly isn't priced cheap, it compares with Nexo and Meyer in price, and finds the same kind of work in professional sound reinforcement.

Singapore's Esplanade Theatres on the Bay is the nearest full scale installation of d+b, it features in the newly opened 1,600 seat concert hall. There, d+b's C system makes up a left, centre and right flown array.

d+b make three series' of loudspeaker cabinets, the E Series, F Series, and C Series in ascending order of power. There is also a line of stage monitors. Like some manufacturers, d+b require their own amplifiers be used with their boxes. This is due to the increasingly complex processing that modern audio theory allows - where very fine equalisation filtering and high frequency horn compensations are done electronically in the preamp sections of the power amplifiers. By allowing a perfect match of amp and speaker, performance is both optimised and also is predictable - making calculated design of a system possible.

Most focus is on the C Series, as this is the flagship range for d+b.

The C Series comes as a top box and a subwoofer. The top box and sub are the same footprint, and can be flown together. Various

flying arrangements are possible - sub, hi, or a combination in one column, or even a column of subs alone in between columns of top boxes.

The three top boxes on offer cater to different high frequency dispersions, and each feature different component loadings. The C7 has a horn loaded coaxial 15" driver backed with a 1.5" exit high frequency driver. It boasts 75 x 75 degree dispersion. The complementary sub to go with this box is called the C7

Then the C4 box comes loaded with a 12" co-axial driver, also backed with a 1.5" exit high frequency driver. The C4 is good for 35 x 35 degree dispersion.

Horn loading is the big trick with d+b, plus the fact that you must use their P1200A mainframe amplifier. The amplifier has internal processing and equalisation to optimise the feed to whichever d+b box is at the end of the speaker cable.

Because the C4 and the C7 are loaded differently (one has a 15", the other a 12" co-axial driver), then the low frequency characteristic is different. Sufficiently so for there to be different sub boxes for each.

The C4 sub has a horn loaded bandpass design for the same 18" woofer that sits in a bass reflex position in the C7 sub. Yet both offer the same footprint.

Once you get your head around d+b's concept, it becomes apparent that the trick is in the way the components are all integrated. For example, the P1200A delivers 600 watts per channel into 4 ohms - but one amp can drive 2 top boxes, and 2 subs. This is because the top boxes are passively crossed over, so they take one amp channel - and two 8 ohm boxes will run off one 4 ohm amp channel. A pair of sub boxes will run off the other channel.

With horn loading and I would guess some serious understatement in specification, putting a bunch of d+b boxes together would start to become quite cost effective. There is no other top end system I can think of that uses amplifiers at a ratio of one to four boxes.

A new C Series top box has just joined the range, the C3 is a long throw extension to the C4 system, and boasts 35° horizontal and just 5° vertical dispersion - line array territory. It does this with a loading of 2 x 10" and 3 x 1.3" high frequency drivers, and is run actively.

• d+b audiotechnik's website is at www.dbaudio.com, and National Audio Systems can be reached at +61 3 9434-1888



C7 stack: C7 top box, with C7 sub



C4 top box



B2 Subwoofer, designed for infrabass with a ratio of 4 top boxes and subs to one B2. Dual 18" loaded.

Vari-Lite has a new start

An icon is sold off, and the new owners pledge a new start. Julius Grafton tracks the life and times of Vari-Lite

So now Vari-Lite has been sold. The story of the sale is on www.juliusmedia.com. The brand will continue, but ownership and the manufacturing rights have gone to Genlyte Thomas Group, while the rental business is to be retained and renamed. The sale resulted in a book loss for Vari-Lite, who has been on a losing streak since they were floated to the public some years back.

In the heady days of the late 1980's, Vari-Lite was the only player in the smart new automated lighting business. Their VL 2B and Artisan control console were mandatory additions to any major show. We saw them on Awards shows; we saw them on TV's Solid Gold show. Every lighting designer had Vari-Lite in mind if tapped on the shoulder for THAT show.

Vari-Lite also had patents, a lot of patents, and was determined to protect them. When Morpheus ventured along with their Pan Command system, and were first to field an automated wash fixture, V-L started the first of many legal actions. Dallas law firms enjoyed the new business.

Across the country in upstate New York, Bob Altman was also smitten with the moving yoke, and determined to put his mark on the well regarded, long established Altman family business. Altman made workhorse lighting equipment and sold it by the ton from their riverside complex. Looking across the compound at the Hudson river flowing slowly past, Bob was challenged with a vision. He called it Altstar.

After showing Altstar at LDI in late 1991, Altman was embroiled in legal action that closed the division. Their new system used colour mixing technology that was coincidentally and arguably protected by a patent held by VL. The brave new smart division of Altman was tanked, the losses offset against tax, and the firm kept doing what it does well, making fixed luminaires.

Several years and some millions of dollars later, Altstar the brand lay languishing in one of the warehouses. We walked along row after row of rental inventory all gathering dust. Bob wasn't keen to talk about it on the record, and really wanted no words published at the time. Over a lunch of a large pork chop at a non-descript Italian eatery in Yonkers, he relayed the dangers of playing in the V-L paddock. The subject then turned to Howard Stern and the salami swallowing scene in his movie. Uncharacteristically, possibly in exchange for the chop or the apple pie afterward, I dropped the Altstar material out of the story I wrote about the Altman family



VL 2416 (based on a VL 5 wash) with a VL 2000 spot at rear.

at the time. As a matter of respect.

With domestic competition temporarily wiped, V-L set its sites on a public listing to get some capital. Meantime a couple of hours drive down from Dallas on the 35 West, High End Systems of Austin were preparing to elevate themselves out of waggly mirrors up to Studio Color, their first moving yoke fixture. They too would be hindered by the V-L legal division, who would spend US\$2.5 million in legal fees by 1997.

Martin Professional also faced a lawsuit relating to distribution of the Mac 600 in the USA, holding the device off the market for around a year. Being pragmatic, they settled and life continued for them.

Today Martin turn-over US \$125 million, while Vari-Lite will struggle to reach \$25 m.

V-L started a new brand, Irideon, aimed at the architectural markets. This cost a lot of development funds and was sold to ETC a few years ago.

Vari-Lite's founder and CEO H. R. (Rusty) Brutsche III started the company off the back of his successful ShowCo PA business in the early 1980's. ShowCo were the leading sound reinforcement company in the USA through until the mid 1990's, while not as large as Clair Brothers they were considered technically more advanced with their PRISM system. ShowCo was sold out of Vari-Lite, to Clair Brothers, several years ago.

Rusty Brutsche was paid US\$794 709 last year. He is expected to remain with the newly renamed VLPS Lighting Services International business, which is a lighting rental company.



Vari-Lite's founder and CEO H. R. (Rusty) Brutsche III



Vari-Lite VL1000 ERS combines the functionality of the ellipsoidal reflector spotlight with the versatility of an automated spot

Vari-Lite only recently started selling moving lights. Until 1999 the firm emulated the Howard Hughes oil rig drill bit story. Hughes made his fortune elsewhere in Dallas by renting his drillbit, which was patented and could not be copied or purchased. Vari-Lite went well with this policy for a while, but were asleep when Clay Paky, Coemar and High End Systems found a market for 'waggly mirror' moving lights.

The Virtuoso console 'below' was a major drain on R & D and has not been sold to Genlyte Thomas. It appears it will only be used by VLPS for their rental inventory.





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Kayye's Krystal Ball: Predictions For 2003

It is that time again to make some fearless predictions for the coming year - and there are quite a few interesting directions the Vision and IT industries could be heading in 2003...

By Gary Kayye, CTS



If you want to read how Gary's predictions for 2002 fared, go to our news website at: www.juliusmedia.com and click on **FEATURES**

Unlike previous versions of my annual predictions for the upcoming year, this year's edition is different. Instead of focusing on specific manufacturers and products that I believe will have an impact on the ProAV business for 2003, I will, instead, focus on technologies and trends. In addition, I will focus on how those technologies are likely to affect the ProAV market in 2003 and even into 2004. Finally, I will explain how you can take advantage of these technologies and market changes to grow your businesses.

First of all, there is no doubt that networking and IT/AV convergence will be a central theme pervasive throughout the ProAV market again in 2003. It all started in 2001 with Sony's bold introduction of their eConference initiative and InFocus' ProjectorNet strategy. In 2002, virtually every major projector manufacturer [sans Philips] added network-enabling projection to their product lines. Now, it's real.

There has been marked resistance by ProAV integrators to embrace IT-enabled AV products.

Sure, IT companies have, universities (the ultimate early adopters) have, and even some traveling presenters have, via new product offerings from Linksys and Komatsu. But traditional ProAV integrators have decided not to do it, yet. That's all about to change. New control interfaces from Crestron, AMX and even Microsoft's eHome division (aimed, as it says, to the home applications) will validate the technology by providing a simple user interface and control protocol to integrate both networkable and non-networkable AV gear. Networked systems are about to go prime-time.

"Commercial and residential actually have similar applications where control is concerned," remarks Dave Silberstein, Crestron's Training Manager. "RoomView allows people to monitor, via Ethernet, switchers, routers, cameras, recorders, DVD players, audio and video processing gear and all sorts of AV stuff are already rolling out or beginning to appear hosting Ethernet RJ45 jacks - all designed to take everything and allow it to be controlled and managed via a dedicated 'AV network.'"

In fact, Crestron is touting their eControl2 interface as the future, and it will certainly raise some eyebrows as they are now giving users the ability to control ANY room, anywhere via the Internet (on a PC or via any PDA). So, you can use any device to control a home or office system using a PC an iPAQ, a TabletPC or

virtually any computer connected to the Internet (wired or wireless connection).

So, like it or not, you AV guys out there need to become network savvy. I know you've heard this a million times. I've been writing about it, most of the manufacturers are now promoting it, and you even use it each and every day in the office and at home. The common complaint, from the dealer, is: "I can't make any money at it. Where's the revenue stream?" Well, that's the value. The fact that you haven't figured it out is why there is a value proposition for it from IT companies. But, let's lose the black-art and identify for you where the money's located. It's simple: proactive monitoring. An IT-enabled system allows you to proactively monitor a system for the customer - instead of the customer doing it.

It's not going to take a corporate or university IT management long to figure out that they don't need six AV guys on staff to monitor this when it can be done automatically, or better yet, they can outsource it to an AV company for half the salary budget!

"he doesn't need six AV guys on staff to monitor this ... outsource it to an AV company for half the salary budget."

Finally, there's an ROI on videoconferencing. Everyone knows I'm not a big fan of videoconferencing as I haven't seen too many applications that weren't troublesome, and where the user of the system itself was even happy. Don't get me wrong, the idea and the technology is

cool, but the application of it is thus far unimpressive - too many problems interfacing with the phone lines and companies. But, it's getting close. I recently saw some cool software upgrades to current systems, and new hardware systems that use compression technology that even works on bad lines. I think this will set the industry in motion. In addition, the emergence of the ever-present, eventual wireless network that's eventually going to float around us at all times will solve most, if not all, the connectivity issues we have with VTC systems. There's eight times more bandwidth on the slowest wireless system than from a wired T-1 line!

Speaking of wireless, network-enabled systems can even be controlled, distributed and accessed wirelessly. Wireless network gear will converge into AV stuff quicker than you know it, and with bandwidth four to five times that of what we need to route everything from XGA to MPEG2 video. So, don't stop learning about networks at the wire. Go wireless.

Today's wireless systems use an industry standard transmission protocol known as



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Gary Kayye's Predictions 2003



IEEE 802.11b (common name is known as WiFi). The current WiFi standard is capable of transmitting wireless data at a speed of 11Mbps, but on the horizon is an upgraded version of WiFi, known as WiFi5 and IEEE 802.11a.

But the real deal is a standard hitting the market in 2003 known as IEEE 802.11g. It's capable of transmitting data at 5 times that of 802.11b (54 Mbps) and is also downwardly compatible to both 802.11a and 802.11b standards. When we hit the "g" standard, sometime this summer, we will truly be in the proverbial information superhighway. This 54Mbps system will not only allow for transferring the highest resolution data we typically use in the average ProAV system, but it's wideband enough to transmit HDTV, wirelessly. About 40% of the projector manufacturers support wireless data transfers today, but expect that to jump to virtually 100% by year's end.

And that means the biggest trend of the year for dealers to watch is that 2003 will bring a power shift from AV to IT. In other words, IT Managers will become the most influential decision makers in large corporation and universities.

Maybe, right about now, you are thinking, so what? What's the big deal? They're just another kind of buyer – just another type of personality. Well, in some cases that may very well be true, but I don't think that will be the case the majority of the time.

Let's take a look at why. First, they buy cheap. Being accustomed to buying based on price, they seek and seek the cheapest solution to a problem. Next, they're not loyal, except to the cheapest seller – most of the time. They are loyal to manufacturer brands & models, especially software-oriented ones, but not to the distribution channel. Finally, they aren't early adopters. They are tried and true buyers. IT managers don't like to be guinea pigs with new products, systems or technologies, so they love simplicity in design. There's that simple word again.

Speaking of simple, I am simply amazed how far projectors have come. The engineering that's gone into the new generation of LCD and DLP projectors is staggering. But what impresses me most is how simply they produce awesome images. It all started with the auto-image adjustment imbedded in the projector and now it's virtually a perfect alignment control. I commend manufacturers like Sony, Texas Instruments and EPSON for setting the standard that will surely make the projector a mainstream purchase in 2003 and 2004. In fact, new imbedded technologies and features are going to bring us the industry's first generation of sub-\$1,000 projectors this summer.

They will not just be cheap, education-oriented projectors either. They will be fully-featured, SVGA and VGA models with enough light output for most environments. They won't

be aimed at the install market, but you'll certainly see a few of them appear there. And, speaking of full-featured projectors, watch for manufacturers like Dell, HP and maybe even Apple to become mainstream projector brands in 2003. Dell's already caused a stir by continuing to lower the price bar every few months. And Dell now has models with end-user pricing matching what half the ProAV dealers pay manufacturers for similar models. Of course, none of these models are install boxes, but it's still creating a price model that makes them extremely competitive, instantly.

And, speaking of competitive, the big story on the horizon for many of the projector manufacturers is the pending competition from Taiwan, Korea and even China. While everyone was predicting a consolidation of the projector market into a few, powerful manufacturers, these countries were busy funding a host of future LCD and DLP manufacturers that will certainly take the lead in many of these price-oriented buyer models. But don't

count out InFocus, Sony, Epson or NEC yet. They will respond, and in a big way.

Finally, let's talk about the economy. Who would have thought the US would still be deep in a recession that we all thought would never happen in the first place, this writer included. I predicted that we would be free and clear of this recession months ago. All indications are, however, that we are starting to come out of it as consumers start to buy again. But as I said earlier, I feel there will be pricing model changes. In fact, I believe that this recession has re-established or re-positioned the price of technology forever. Where we could charge virtually anything for new technologies as they debuted before the recession, you can't do that now and will unlikely be able to do that any time in the near future. But, that doesn't mean the future is bleak – to the contrary. In fact, the recession has created value in services.

Look who is growing, Target or K-Mart? Target. Why? They both sell stuff cheaply, but Target does it with better perceived and real value in services. Better people, better stores and better merchandise. I know you must be reading this and wondering what the heck this has to do with ProAV sales. Well, think about it. People are spending less money and are spending it more wisely – not necessarily on better value (if that were the case, K-Mart would be growing faster than Target and not only is that the case, they are bankrupt in the US). People will pay for better services. Sure, they want better prices and will continue to seek them out, but they will be willing to pay for better service as technology will no longer be the driving force factor in most decisions. People will.

And, last time I checked, we had some really good people in this market.

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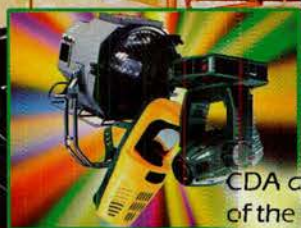
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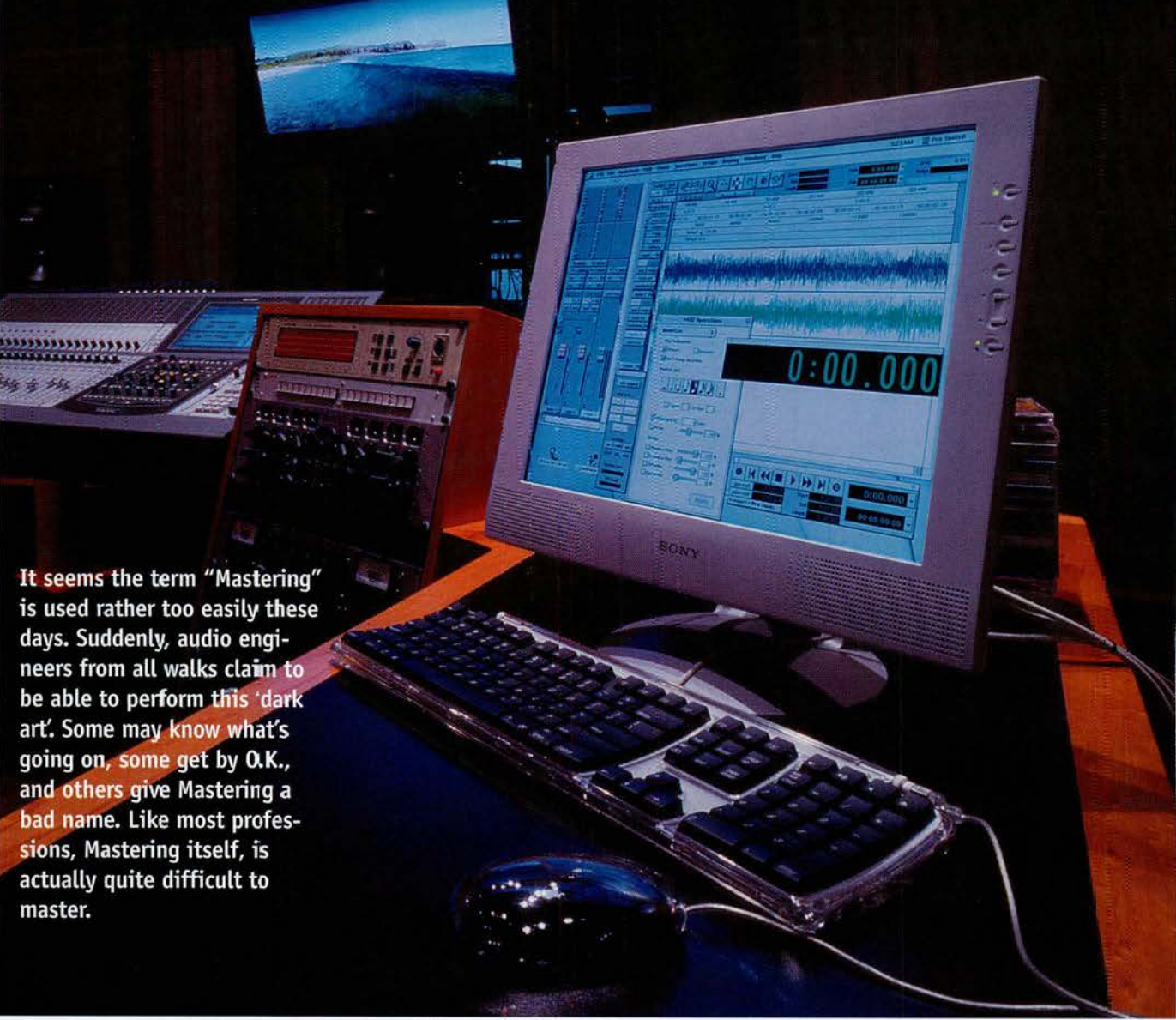


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Mastering For Beginners

Does anybody know what Mastering is anymore?



It seems the term "Mastering" is used rather too easily these days. Suddenly, audio engineers from all walks claim to be able to perform this 'dark art'. Some may know what's going on, some get by O.K., and others give Mastering a bad name. Like most professions, Mastering itself, is actually quite difficult to master.

By Joe Carra & John Ruberto

It is based mainly on a keen pair of ears, a natural talent to bring out the best in recorded music and years of experience. This article was put together in the hope that it may reach the many musicians and up and coming engineers, whose counterparts call us about the same issues day in and day out, regarding Mastering. This article addresses the most common questions we get asked, as well as a general description of Mastering. There are also some tips on how to ensure your mastering session goes as smooth as possible. Obviously seasoned engineers may find this article a bit of a yawn, though the smarter ones may decide to read on anyway...

Once upon a time, in a galaxy far, far away, all mastering was left to the experts of the trade who knew how to pull a great sound. Through their experience and consistent ability to make the right decisions, they could bring out the very best in a mix. Through the various processes used in Mastering, the engineer could improve the tone,

depth and clarity of a mix. So what is Mastering?

Mastering is the art of enhancing recorded music, in order to attain the most pleasing listening experience possible. It is the last stage of fine tuning a recording, a stage that helps translate what the artist hears in the studio, to real world environments. I know this description sounds like a text book style definition, but it's actually a very accurate description.

Mastering is a specialised process that requires the highest grade audio equipment, often purpose built or modified, as well as mastering engineers with the expertise to use this equipment. Mastering can make an average recording sound very polished and when applied to a great recording, the results can be quite amazing. A mastering session may involve one, or all of the following processes; equalisation, compression, limiting, balancing levels, stereo enhancement editing, noise removal, PQ encoding, dithering and of course, creating a high quality production master.

The mastering process was once reserved only for major artists and record labels, but has now become a

Joe and John are from Crystal Mastering in Melbourne. Call +61 3 9326 2318

much more common part of the music making process due to the growing awareness of its importance. Even the biggest selling music acts in the world, who use the greatest recording studios and engineers, would not dream of releasing anything unless it was worked on by a professional mastering engineer.

How much mastering your recording needs, is an entirely separate issue. Some recordings only require very slight adjustments or edits, others require greater levels of enhancement. If nothing else, the mastering stage can be considered as a safety net, giving the opportunity to an experienced music listener to have a fresh and unbiased opinion on the final recording, in an environment designed for critical listening.

What is the most important process in mastering?

Besides creating a production master, 'Equalisation' is arguably the most important process. Basically, a mastering suite should be set up so as the monitoring and acoustics produce a very flat and neutral frequency response. In this way, the engineer can clearly identify which frequencies the recording lacks, or has an abundance of. If a mix engineer has the job of balancing the individual instrument levels in a mix, then consider the mastering engineer to have the job of balancing the individual frequency ranges of a mix. (By frequency ranges, I mean, mid range, low mids, high mids, bass, subs, etc)

The mastering engineer then replaces or removes the frequencies that he feels are needed to produce an overall tone that will sound great on all playback systems. It can be quite amazing what a good EQ will do to enhance a recording. The mastering engineer will also be aware of the different types of EQ required for specific styles of music. It's not a case of one EQ fits all!

There is no doubt that the best sounding CD releases are those that haven't had a half-arsed, so called mastering job done on them in 30 minutes, in an environment that's not fit for Mastering. This may sound a little harsh, but it's the difference between a world class product, and just another recording. Obviously a great sounding CD is the result of getting things done right from the beginning.

Let's not give the mastering engineer too much credit, they can't perform miracles. They are only a small part of the production chain. Nothing can compare to getting that mix nailed. Mastering can then simply take it to the next level. If a mix has problems, all that great gear in the mastering room is used to fix problems, instead of enhancing a great mix to sound perfect.

The benefits of mastering will multiply if the right decisions are

made in the mixing room. Lets not forget the basics in recording either. A good mic, correct mic placement, a clean signal path etc. It's amazing how good a simple recording can sound compared to one that has had every processor under the sun thrown at it. It seems over years, the classic line, "We'll fix it in the mix", has shifted to, "We'll fix it in the mastering", and sooner or later that attitude lands someone in a lot of trouble.

You must have heard the expression, "Jack of all trades, master of none". If the mixing engineers' job starts to cross into the realm of the mastering engineer, the result sometimes comes off second best. The recording engineer has a job to do, as does the mixing engineer, as does the mastering engineer. Everyone must play their part in order to get the best result. If everyone does their job properly, the result is usually a sound that is a cut above the rest. The artist is very happy, so is the record label and producer. More demand eventually comes to those who were involved in the project, as their names are associated with great sounding work. Quite simple really.



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Seven Tips For Your Mastering Session



Joe Carra & John Ruberto make some important notes for those going to a mastering session...

Tip # 1

What format do we need to bring to the mastering studio?

Ten years ago, this question was a lot simpler to answer. Bring in your half inch tape or DAT. Now, in the throws of the digital revolution, there are a few more options. Audio CDs are an obvious option. At 16bit, 44.1 kHz, they offer the same resolution as DAT. However, more and more studios are recording onto hard disc, at 24bit, and so it makes sense to bring these higher resolution files to the mastering session on CD ROM format. Most mastering suites should be able to cater to this, and like myself, prefer 24bit, interleaved, stereo files.

The most common file formats are AIFF, Sound Designer 2 or .WAV. Check with your mastering engineer to see what they prefer. There are other 24bit formats, such as 24bit DATs (made by the TASCAM 45HR) and the Alesis Masterlink format (which is essentially AIFF files). If you're mixing on something like a Roland 1680, and you don't have a burner, you can normally just bring the unit in. (i.e. assuming it has a digital output and not some crappy D/As). Even though these higher resolution formats are slowly taking over, there's no need to stress if you are supplying your mastering engineer with 16bit DATs or CDs.

There are still plenty of great 16bit recordings being made, and this format will no doubt be alive for some years to come. If you are recording onto hard disc at 16bit, please don't save your files as 24bit. There is absolutely no benefit in doing this, in fact you are doing your mixes a great injustice by adding extra digital information which will only degrade the audio signal. Also, don't forget about the trusty half inch and quarter inch analogue machine, still as good as ever, with a resolution and bit rate that's hard to beat.

Tip #2

A tip for those thinking about supplying their mixes on CD ROMs or Audio CDs....

"PLEASE BURN THE DATA AT 1x or 2x SPEED." As convenient as it is to spit out your CDs at 40x speed, DON'T! If your clients want convenience over quality, show them to the closest 7eleven. Burring at real time, onto good quality discs (not 68c specials) cannot be underestimated. Plenty of mastering sessions are delayed and postponed due to faulty burns. Disasters have occurred where mixes have been erased off the hard drives before errors were detected 3 months later at the mastering session. Talk about shit pouncing into the fan! As an engineer you don't need this stress, all for the sake of burning your CDs at warp speed. Most CD burners in PCs and MACs are cheap, domestic grade units, no where near the quality of mastering grade burners, so beware of high speed burning.

Tip #3

Sending your client away with only one copy of the mixes is not a smart option.

A back up DAT or CD should always be created. Burning DATA discs of a full length album can take hours, so if the thought of burning two real time copies of fifteen mixes at 3 a.m. is too much to handle, as

opposed to a quick 40x burn, then think about this. I'd say 99% of artists I've dealt with would have no issue at all with coming in the next day to pick up their mixes, if it meant they would be supplied with a superior product. This is because artists put a lot of energy into their work and will just about always opt for quality, over cheap and nasty. (I did say 'just about always') If you're serious about what you do, make a back up copy of the project and keep it for yourself. If something should happen to your clients discs, you'll look pretty damn good when you hand over your own back up copies.

Tip #4

Do I need to compress the stereo mix before mastering?

Compression on individual instruments in a mix, is almost essential in modern recording. Compression on the stereo bus can REALLY SUCK BIG TIME!! Youngsters, beware of this trap! If you know your mixes are going to a professional mastering engineer, there's no need to help them out by applying your own 5 minute mastering job on the mix. Any processing over the stereo bus is fraught with danger. Only seasoned mix engineers should tackle such a job, and even then, the reason for doing so should be pretty important if it's eventually going to be mastered.

But hey, there's no rules! It's a free world. Anyone can go wherever their creative spirit takes them in their own studio. But lets not confuse the word mastering, with slamin' music through a digital limiter. I know this sounds obvious but I'll say it any way; mastering engineers cannot magically remove the ugly, over compression that you apply to the stereo bus. There, I've said it. In this digital age, it's all too simple to open up another plug in and process the stereo bus, but resist this, even if you think you're making it sound better in the little corner of your world.

If you feel the mix can be improved, don't hack into it with dangerous mastering plug ins, listen to the damn mix and figure out why you don't like what you're hearing. Fine tune your mix until you're happy, then, LEAVE IT ALONE! Don't worry if your mixes are not as loud as the latest release. There's a perfectly logical reason for this... "IT HASN'T BEEN PROFESSIONALLY MASTERED YET!"

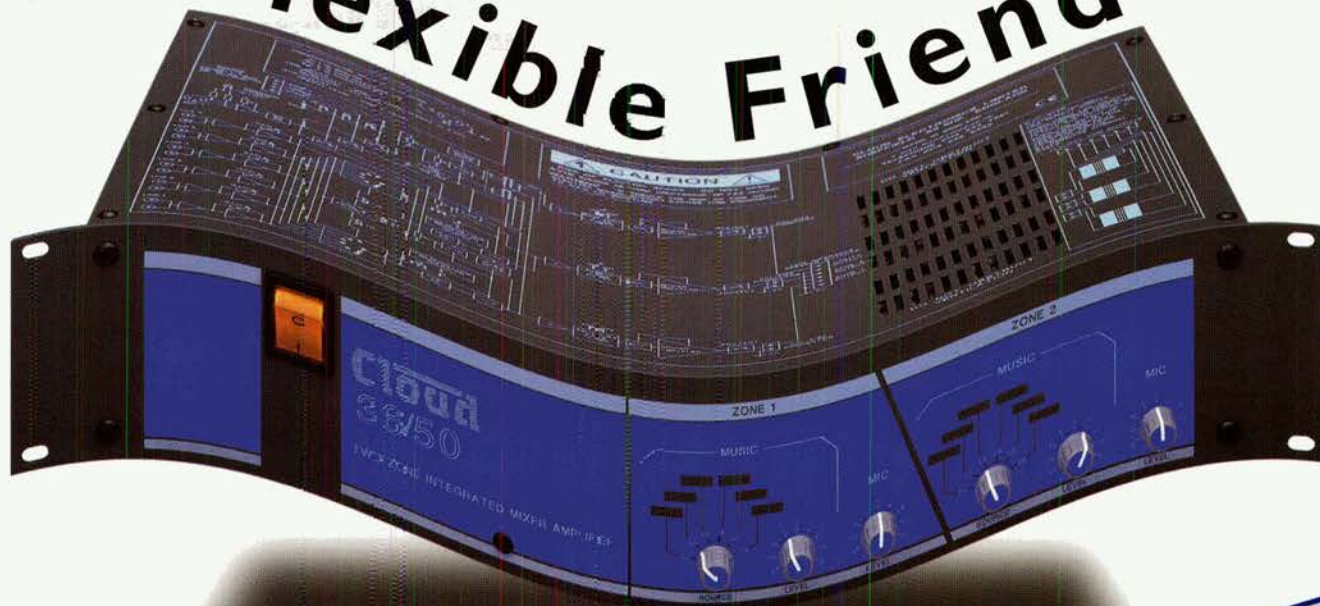
Increasing the volume of your mix is best left to a professional mastering engineer who'll be using dedicated mastering equipment. If you feel strongly about using stereo bus processing, then do the following:

1. Make a version with the processing, and one with out. Let a professional mastering engineer decide if you've over done it. In the light of a new day, you'll probably agree with their opinion.

2. If you're in a large, pro studio, and like the sound of the mix running through some expensive compressor, just log your compression settings down, and give them to your mastering engineer. Chances are he/she will have a similar or better compressor, but more importantly, will be able to apply this compression with the benefit they can bring to the mix such as, a good nights rest, mastering grade speakers, accurate acoustics, and hopefully a decade or two of experience, compressing stereo signals.

Once again, lay down a version with out the stereo bus compression

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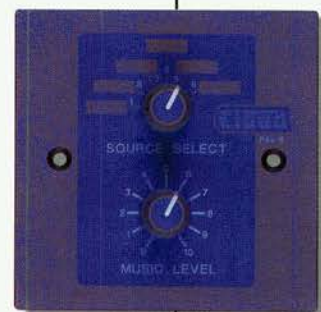


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if you feel compelled to do so. Mastering engineers will just about always run the mix through some hi-end compressor, so don't feel as if you need to do it as well. (once again, I did say, 'just about always') N.B. This also applies to other stereo bus processing such as Limiting, Equalisation & Stereo destroyers...sorry Stereo Spreaders.

It's very difficult to improve the sound of a 'crushed' mix. A lot of the time, a mastering engineer tries to undo the consequences of an over compressed mix. Volume is only one aspect of the mastering process. Mastering engineers have tricks up their sleeve as far as making loud CD's, without them sounding squashed and unmusical. That is why he/she is a mastering engineer. Sound quality, should always take first preference over volume. So remember youngsters, you can't expect a recording to have great depth and sound quality, if it's had the life squeezed out of it before it gets to the mastering room?

Tip #5

Make sure you bring the first generation mixes to your mastering session.

Not copies or transfers. This will ensure the best possible audio quality. If it was mixed onto DAT, (Digital Audio Tape) don't bring a CD copy of the DAT, bring the original, even if it was digitally transferred. As tempting as it is, prior to your mastering session, to extract your mixes into your PC at home, and shuffle the order, apply some fades and level changes, do edits and crossfades, STOP RIGHT THERE!

Each one of these digital processes adds to the length and complexity of the digital word, and if it's not dithered correctly you'll be doing more harm than good, plus, the mastering engineer will also have to apply dither, again, to the final master. Not only that, you'll be bringing a second generation version of your mix to the mastering session.

Edits and other changes that may take you hours to perfect at home, will only take a fraction of the time in the hands of an experienced mastering engineer. You really won't be saving that much studio time. Unfortunately, most domestic audio editors simply lack the finesse and sound quality of a dedicated, \$50,000 mastering workstation. These workstations such as, Sonic Solutions or Sadie, are revered by mastering engineers and top producers all over the world because of their extraordinary sound quality.

These digital workstations don't use the PC to process the sound at all. They carry their own on-board processing cards, which are designed for one thing only...High Quality Audio. Fades and edits will not only be smoother and more accurate, they'll be carried out in a 'non-destructive' environment that will allow you to alter the edits over and over again without degenerating your audio.

Ever wonder why each time you make a change to your audio in your home PC, the spinning wheel comes up and you have to wait a minute for the recalculation? This is known as 'destructive editing', and you are in fact creating another version of the audio on your hard disc. Every individual process involves regenerating another wave form onto the hard drive. Not a nice thing to do to your music. And yes, I realise that in recent times, more software editors are allowing non destructive editing, but once again, you still end up burning another CD, on a domestic burner, that probably has 20 times more jitter than a mastering grade burner. (poor jitter = poor quality. More on that another time.)

So why bother in order to save a few minutes applying fades and edits at the mastering session. If there really are a lot of complex edits

to be made, feel free to experiment at home, even bring in a mock up CD if you think this will help the mastering engineer. Just remember to bring the originals. Please.

Tip #6

Leave at least 2 seconds of audio after each track on your CDR.

There's simply no need to apply a frame perfect, edit at the very end of a track. This is important, because a lot of domestic burners may either clip the last couple of frames, or insert a nice glitch at the end of an audio track. Your burner may not do this every time, but I've heard it happen often enough to write this. The same principle goes for audio files. I'd recommend leaving at least 5 seconds after the audio to avoid having your mixes clipped. This may seem like over kill, but it's a safe and sensible approach.

Tip #7

Make sure all materials brought to mastering are labeled correctly.

This sounds obvious, but even some experienced engineers get this one wrong. DATs and CDs normally come supplied with blank labels, USE THEM. Searching through a twenty track album, that has multiple versions of each track can be pretty time consuming and expensive. This is not what you want your precious mastering session taken up with. Make sure it's obvious what version of a track needs to be mastered. If you're supplying a CD ROM, make sure the 'bit rate' and 'sampling frequency' are clearly listed. Label all files with their correct track titles. Don't supply any additional data on the CD ROM that may confuse the simple mastering engineer. All we need are the tracks...and nothing but the tracks. (always wanted to say that.)

We constantly speak to young engineers and artists starting out, who feel they are led to believe by manufacturers, software companies and sales people, that Mastering is just a quick last step that they can easily carry out themselves. A lot of artists we deal with actually attempt to master their own album dozens of times, before giving up and seeking professional mastering help.

This is mainly due to the illusion created by software marketing departments, that Mastering, which was once a job reserved only for professional mastering engineers, has somehow changed over night due to the convenience of digital workstations, and can now be easily carried out by any individual with their product (of course). I cannot say how many times I've heard a perfectly good mix ruined by a quick and disastrous mastering attempt. So many times I've requested to hear the un-mastered (I shudder to use 'mastered') version of a mix, only to be blown away how great it sounds compared to the pseudo - mastered version.

It's true that there are some good CD mastering programs for PCs and Macs. But it needs to be understood that these are make-shift solutions for the real thing. Great for quick demos and low budget projects, but they will only go so far. They are known more for their speed and convenience, not their world class quality. It really depends on what results you're prepared to accept.

Hopefully this answers some questions that may assist those unsure about the Mastering process. Good luck with your recording and mixes.

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Farnham's Last Time tours for a long time

It's an epic tour that started in November with eight sellout arena shows in Melbourne. After Christmas it's into tent, as The Last Time Tour moves through regional Australia. The tour ends in June. So is it REALLY the last time for John Farnham?



As far as deadset legends go, Whispering Jack Farnham is up there. His contribution to the live music industry in Australia is second to none. Every two years, John Farnham has staged sellout tours, and made sure every show has sky high production values.

We hear it in the streets. Ordinary people who go to a John Farnham concert also may go to see Cliff Richard, Elton John or Neil Diamond. These performers all share a common objective: to stage a very high quality performance. Our hairdresser, grocer, bottleshop owner, doctor and accountant all say the same thing: 'He (*insert name from above*), puts on a great show!'

High production values are crucial to the ongoing success of these artists. John Farnham's tours always match or exceed anything technically we see from overseas. He has used the best available talent and equipment, as do his contemporaries.

The current 'Last Time' tour is the largest that John Farnham has attempted, with a tent tour added onto the end of the sellout arena season of 2002. Touring a six pole tent

that seats 4,000, the tour starts February in Kalgoorlie and travels the country until June.

There is plenty of risk in the tent, the tour has the potential to lose what was made in the arenas. Tickets are onsale now, and at presstime an announcement of a tent tour for Long Way To The Top was imminent. That tour would start in Tasmania - at the opposite end of the country.

The arena tour that ran through November and December featured glam deluxe lighting, audio and vision, framing a highly musical show that ran a generous two and a half hours.

The first half of the show was done on a thrust stage in a semi-acoustic fashion. After interval the main stage was revealed for a solid concert performance that had all technical elements supporting, not dominating, the large band.

The audience loved it. John F. has a generous heart, and endures wave upon wave of women who want to shake his hand, give a gift, or even kiss him — while he sings.

Like he says: "I love my job!"

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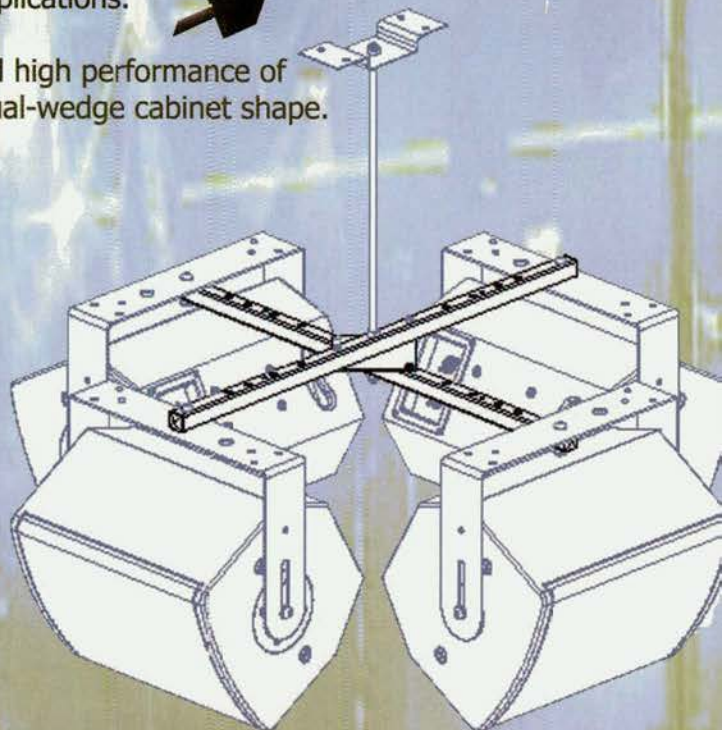
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Chris Newman

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10 x 8way Moles
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Lighting for the Farnham tour has been designed by Chris Newman, in close consultation with show designer Ross Fraser. Early on, it was decided that they wanted a very 'clean' look to the stage – no amps or equipment – just the instruments, mics and performers. This also meant no moving lights to be obtrusive around the front of the stage – something that John Farnham in particular specified.

One of the earlier show meetings, when the actual stage surface was being selected, Chris suggested they use a particular type of single colour carpet that he had used previously on an Olivia Newton John tour.

"The carpet is great because with all the footprints, vacuuming and movements, the final effect looks like crushed velvet across the stage," says Chris.

From a lighting point of view, Chris indicated that the carpet gives a real 'texture' to the surface under the stage lighting – and he was right. At the show Connections saw at the Sydney Entertainment Centre, the stage was easily seen by those in the tiered seating banks. The mottled effect through the light grey carpet diffused what is often a blank or black surface for many other shows,

and made watching the performers much easier through the long show.

The lighting rig itself consisted of an array of the latest lighting technologies, with 50 x Martin Mac 2000's doing the bulk of the work. The tour also made use of the new Vari-Lite VL 2416 – the new arc lamp wash light. The lights were shipped, uncrated and fired up in the Melbourne venue where the tour went through its final rehearsals. Both Chris and the moving light board operator Peter Lothian were very impressed with this new offering from Vari-Lite.

Chris said that they quickly worked out how good the unit was during the all night plotting sessions that he and Peter managed to squeeze in after the band and sound rehearsals. Peter's take on the fitting was that it had a "very smooth move, and the colour control is REALLY good."

Fast movements were certainly not a problem for the Vari-Lites, but it did prove to be a small issue with the Mac2000s. Chris indicated that some of the original design ideas had to be re-vamped when it was discovered that some of the audience sweeps they had planned didn't happen fast enough with the Mac2000's.



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Companion M2D-Sub available



M3D

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(1372 mm x 508 mm x 762 mm)
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Max Peak SPL 145 dB
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All M Series Loudspeakers are self-powered.



"One thing I learned from Bill Graham is that collectively, our ultimate goal is to please the audience. No matter how big, no matter how small."

John Meyer
President & CEO





Lighting Rig Control

Moving lights were controlled by a Grand MA and operated by **Peter Lothian** (pictured above). Backup console was a Grand MA Lite). The Catalyst systems and conventional lighting were controlled by WholeHog II with wing board, and operated by **Chris Newman**.

Electrical Hassles

The final Sydney show was postponed due to bad power spikes prior to the performance. The city was circled by wildfires, and high tension feeds were tripping each time flames licked the wires. This created fast on-off spikes and surges through the city grid.

Elevators stopped between floors, traffic lights tripped off, and the electric rail network was paralysed.

At the Farnham venue there was some damage done to a Barco projector which was running one of the Catalysts. Otherwise the real concern was the possibility that it would get worse and the no-one could guarantee that it would be 100% by showtime.

That night's show was postponed, as were shows at the Opera House. The crew ran a generator for the lighting system for the following shows. Audio ran UPS's across the monitor & FOH desks and FX.

Interview: Chris Newman

• Go to www.juliusmedia.com

In pre-production, Chris made extensive use of the Martin Showdesigner software, so that some cues could be pre-plotted, and they could see rendered views of what the show would look like. Chris says that one of the biggest advantages this software has over a few of the others is that you can see the fixtures move. More than just 'a gimmick', this was essential so that he could see the light positioning themselves in a 'marked' cue (a movement cue where the light is moved in preparation for the next cue).

One thing that did trick them in the software was the all of the gobo effects were rendered with sharp edges. When the rehearsal was first fired up with the pre-plotted cues, it took them a moment to realise that the focus of the gobo had not been set in the pre-plot.

Using the GrandMA in the plotting process was initially a steep learning curve for moving light operator Peter Lothian. Luckily, he had the desk for a week before the rehearsal period so he could familiarise himself with the way this desk wanted him to work.

"I have used the desk on previous shows, but this was the first time when I had to carefully plot each cue," says Peter. His previous experience had really been using the desk 'on the fly', but the Farnham tour allowed him to explore the deeper operation of the desk.

There was a few curly things about the effects engine he discovered, like the fact that the built-in effects palette creates an entirely new palette location for any variations from fixed ones. This, coupled with a slightly different syntax for recording a cue and effects in a cue made it a little harder to use at first, but he is more than happy with it now.

Another issue was with using the GrandMA Lite as a "tracking" backup desk. That means the backup desk is replicating the

cues of the main desk, so if a changeover needs to happen, the backup is ready at the right cue. There were some initial problems in Melbourne with the main desk locking up while the back-up desk was tracking. They did not have the time to solve the problem in pre-production, so the desk is kept in a stand-alone mode with the show loaded into memory. If the control needs to swap, the backup is jumped to the nearest cue and a switch is thrown which directs the DMX to the new desk.

Another piece of technology used extensively in the show is the High End Catalyst system. Chris's original intention was to have at least one of the three systems with the moving mirror mounted so that the video effect could be placed anywhere as required. However, this concept was squashed early in the pre-production process.

The three Catalyst images were used side-by-side on the huge 22m x 5.8m rear screen. All together, they produced an aspect ratio of 4:1, with each projector providing a 768 x 576 pixel image. This was the first time a multiple system synced Catalyst was to be used in the country, and not surprisingly there were some teething issues and a steep learning curve for everyone to climb.

The system was to be controlled by a Wholehog II, which needed the very newest software upgrade. Output format of the video files was a critical issue, with the Macs wanting very specific file and video formats. The Macs were able to be easily synced to each other (within a few frames accuracy), but not to an external sync source.

About Catalyst

The High End Catalyst system has been mentioned previously in a number of Connections articles, and it was first seen by this writer back in 2000.

Essentially, each system uses a Macintosh G4 that plays video files or still images out of the VGA port of the computer. These images and movies can all be selected, faded and otherwise 'effected' via DMX control.

By far the most interesting part of Catalyst is the implementation of the optional moving mirror head, so these images can be placed anywhere on the stage and set as required. Not only is the Catalyst able to adjust for keystone on the various surfaces it shoots, it can automatically rotate the images depending on the direction of the mirror so that the image is always correctly orientated.

A typical Catalyst system comes with a library of effects, including hundreds of gobo patterns and some moving vision effects. Add the moving head and it is a different story, because nothing else can (yet) do what a Catalyst does with moving a moving image.



Live and Installed

Technical Audio Group Quarterly Newsletter - Summer 2003

IT'S ALL HORN!

Martin Audio released their first vertically stacked component system back in 1974. Far from being late on the line-array scene W8L actually draws on nearly three decades of vertical component stacking experience!

The new flagship is a 3-way all horn-loaded design with a 15" bass, two 8" mids and three 1" drivers.

With typical Martin Audio flexibility the result is a system just as capable of providing the finesse and detail for a symphony orchestra as being let loose on a 'balls-to-the-wall' performance for the heaviest of metal bands.

Flown in a typical 'J' line array, W8L provides for long, medium and short throws with Martin Audio's DISPLAY (Direct Sound Prediction Loudspeaker Arrays) software that determines the signal processor settings for each individual venue.

HERE'S ONE WE PREPARED EARLIER....

Allen & Heaths new PA Series combines all the electronics for a small scale PA system in one easy to use box: 12, 20 or 28 input channels, 16 digital effects, 4-band parametric output EQ and an optional 500w/ch power amplifier. Plus SPDIF digital recording cut, individual +48v Phantom, 100mm Alps faders, lamp output, assignable amplifier channels and so on. What a delicious mix!

PA12-CP (Powered): \$3,995 RRP. ☎ TAG for pro user.



TECHNICAL AUDIO GROUP

News from one of Australia's Leading Suppliers of Professional Audio

HIGH OCTANE DIGITAL ENGINE FROM ALLEN&HEATH

iDR is a new generation, high performance digital engine that combines the comprehensive facilities required for complex multi-zone installations with the simplicity of 'single-button-push' reconfiguration.

Expandable in 8 channel units right up to a 16x16 cross-point matrix, iDR is a digital box full of processing tricks including output limiters, multiple priority ducker, automatic mic mixer, parametric or graphic EQ, noise gates, compressors, a real-time clock for triggering preset changes or recorded messages, plus a dedicated range of wall plates.

iDR: \$9,995 RRP. ☎ TAG for pro user.



SOME FORMATS ARE MORE UNIVERSAL THAN OTHERS



The recording of meetings, interviews, lectures and numerous voice-only applications has, despite the best efforts of other digital formats, remained the stronghold of the low-tech analogue cassette.

'Games Up!' The new Marantz CDR300 is a transportable CD recorder with comprehensive features but simple operation.

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Now PL-2 is also available in a special 'A' version with adjustable gain structure, internal bi-amp crossover and augmented displays.

But the biggest PL-2 news is the special summer pricing – even better than last year!

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DIGITAL PROCESSOR WITH 'THE LOT!'

Simply put the DSP-30 enables the laptop armed audio engineer to configure and lock, via password protection, an amplifiers signal processing settings for a tour or installation. Each two-channel unit can perform a wide variety of 'drag-and-drop' DSP functions such as crossover, shelf and parametric filtering as well as signal delay, compression and peak limiting, etc, all recallable for future use. Fries with that?

DSP-30: \$1,595 RRP. ☎ TAG for pro user.

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RMX 4050HD: \$4,295 RRP. ☎ TAG for pro user.



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INTO 2

8 channels of QSC power are now available in just 2RU! Designed for the special needs of sound contractors in multi-zone installations the new CX163 are just 350mm deep, weigh 9.5Kg and feature an HD15 DataPort connector for computer control. Plus clip limiters, HP filter, Euro style outputs, barrier strip outs, custom integrated security cover and active inrush limiting which removes those nasty thumps at switch-on.

CX163: \$5,995 RRP. ☎ TAG for pro user.

New 2000 watts per channel powerhouse, the RMX4050HD, is the latest addition to the extremely happening RMx range.

Fully independent channels, complete with individual power supplies, are designed to run as comfortably at two ohms as most can do at four. With both channels delivering 850 watts/channel, 1400 at 4-ohms, and 2000 at 2-ohms the RMX4050HD can drive a total of eight 8-ohm subwoofers!

Like all QSC MX amps, the 405CHD features XLR inputs and Speakon™ outputs to protect speakers and increase headroom.

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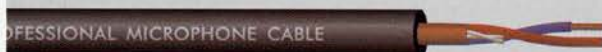
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The 'Mack Truck' Of Star Quads. SQ422 (6.2mm OD, PVC Jacket, Braided Shield) \$ 3.25/Mtr.



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Stereo Mics Prefer It! TP414 (3.4x7.0mm, PVC Jacket, Tinned Copper Spiral Shield) \$ 3.95/Mtr.

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The Tent tour will test audio, since the canvas will be drum tight under summer sun during the soundcheck, then flapping loose in the cool of the evening. A DV-Dosc system will be used since there are weight limits. The show will be done 'in the round' and intimate, for 4,000 people.

By Julius Grafton



Grant 'Tosh' Walsh always mixes John Farnham. He is welded to the performer. So too is monitor engineer John Henderson. There are long term loyalties in this camp.

The sound of a Farnham tour has progressively improved too, mostly when the V-Dosc line array PA was added. This tour sounded the best yet, and the introduction of in-ear monitors for all performers except John Farnham has a lot to do with it.

"We tried then (in ear monitors) with him" says Tosh. "The problem is localisation of the crowd comments. He needs to hear where they are coming from, and with ambient mic's (mixed back into the in-ear monitors), there is no direction. We experimented with a lavalier mic on his lapel, that had some directionality - but it didn't work in the end".

No matter, because removing all other stage monitor loudspeakers from the stage background noise has cleaned up the mix tremendously. Stage noise levels are significantly reduced, making the front of house task more pleasurable.

"There is more headroom, and more

dynamics now".

Tosh is mixing this long tour on a PM 4000. "The sole reason is we are going into territories no man has been before. It must be reliable", he states, referring to the tent tour.

"Also I don't need automation, and there is no support act. I only use the mute groups in the first (acoustic) half. There's no tender, loving stuff, the show is all John".

Every input is filled, 64 lines arrive at the desk. "It's the full enchilada", jokes Tosh.

Up in the roof is the V-Dosc line array PA, and this being the second tour for Farnham using V-Dosc, things are configured slightly differently.

"Last time we flew the subwoofers. Not this time. Flying them, there's less juice. I get more through (ground) coupling". There were 16 subs for each side of the front PA, and 4 subs tucked around the two corners for the side arrays.

The front subwoofers and V-Dosc elements are crossed over, meaning the subs take over low frequency duties under 100 hertz. But the side arrays were programmed full range,

so the flown V-Dosc boxes worked their whole response range, with the 4 subs cutting in and supplementing.

Last tour, Tosh had the main subwoofers acting this way too, and fed them from an auxiliary send (bus). This let him decide what would, and wouldn't, go to the subs.

He is happier with the current configuration, and feels it sounds a bit richer.

As to the tricks of the mix, Tosh downplays his role. "It's like a radio mix, and one thing jumps out from time to time". Tools revered this time include the dbx 566 valve compressor limiter.

John Farnham is using a Beta 87 wireless handheld mic, an experiment with the Neumann/Sennheiser combo that Kylie used was abandoned at rehearsals. "It sounded great, but there was too much handling noise. When Kylie uses it, it never leaves her hand". John Farnham throws his mic - hard - from hand to hand, and is adept at flipping it high into the air and catching it - sometimes behind his back.

There's no trickery anywhere in the spec list either, all the sounds created and engineered are straightforward.

MONITORS MIXED ON DM 2000's

"Look at the footprint - just 8' x 4', for two desks and all the processing" enthuses monitor engineer John Henderson. Yamaha's new digital mixer was designed with 5.1 post surround mixing in mind, and it won best new audio product at ENTECH. (Review: see www.juliusmedia.com 'New Products').

It comes out of the box with 24 analogue inputs, for a total of 96 channels. John Henderson wondered if he could link two consoles digitally and use 24 inputs on one, and 24 on the other. He could, and did, and so each desk has all 48 inputs available to the 12 auxiliary sends and the 8 group outputs.

"I just thought of it as a PM 4000, then it became logical" says John. His desk sends monitors to the three main vocalists, drummer and keyboard player. Assistant Bob Daniels mixes monitors to the two guitarists, bass player, and 'the three brassholes'.

John's monitor mix includes three stereo wedge sends for John Farnham, who is the only performer not with in-ear monitors (due to localisation problems where crowd comments can't be located).

The wedge sends are stage left, right and out to the thrust 'pod' stage. All are equalised on the internal third octave equalisers in the DM 2000. "They work very well, are fast and super clean".

Sound quality is a plus, John reports he is amazed at the sonic quality. "I wanted the desks for the scene setting capability".

Previously John had worked with Bob mixing on one XL 4 console. "You can't help but get in the way".

Bob supervised an arsenal of in-ear transmitters and wireless receivers, top of the line Sennheiser and Shure featuring.



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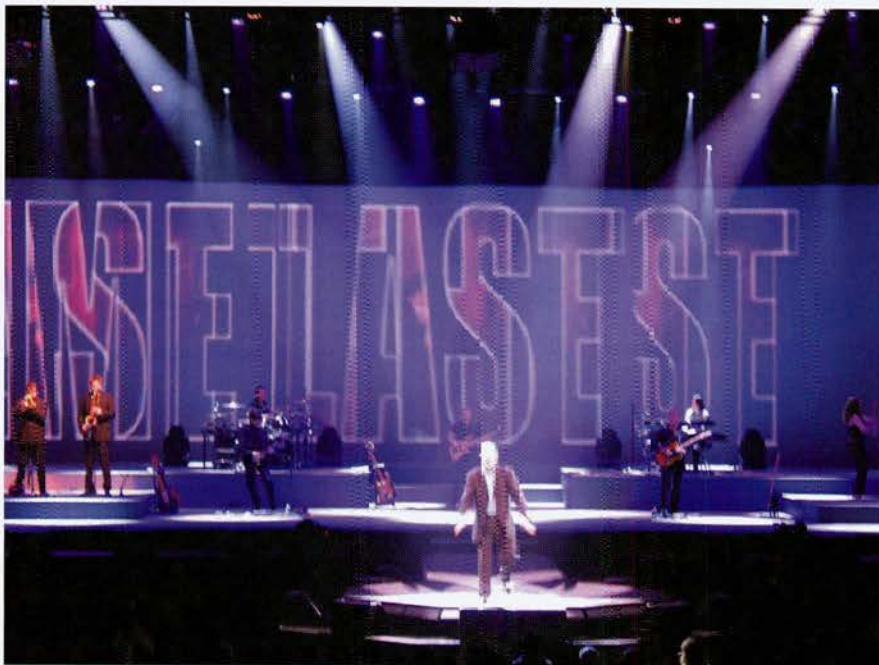
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Video expands for the last time

Big Picture Australia is again providing touring video production and facilities for John Farnham's 'The Last Time' tour. It is the fifth John Farnham tour over 8 years that Big Picture has been involved in.

Denis Murphy gives John Grimshaw a run down of the video spec for the show...

Mac G4's on the road, each drives on a Catalyst system. The Mac is a hardy beast, with a very stable power supply. They routinely withstand spikes and surges that shut down most other PCs.



Big Picture's OB1 system has been upgraded to accommodate the signal format and routing requirements that Dennis Murphy (Director) needed for the tour. The main 3 elements of the video coverage comprise of the production system, the arena screens and the stage screen.

PRODUCTION SYSTEM

Big Picture continued to upgrade their OB1 system with additional Snell and Wilcox analogue to SDI converters installed enabling full serial digital routing of all sources.

A Scry DFS700P switcher is used for the main show coverage with each show recorded onto a EVW75 SP Betacam VTR and VHS.

Serial digital output signals are sent to projectors from Leitch XPLUS router with a Leitch VIA32 composite router as a backup. The 2 routers operate in parallel, "mimicking" each other hence enabling a smooth transition if backup systems are required. A series of "salvoes" (router presets) are used to route specific signals to specific projectors on show cues.

Despite the 'hard' switching of signals, the Barco projectors do not 'flip' or lose sync when the image sources are switched.

All analogue conversion and router control is via control software to

enable fast, consistent and accurate setups and quick reprogramming.

Show commercials and inserts are played off DVD-R, and are created by a new Avidexpress edit system based on the new Macintosh 1GHZ Titanium Powerbook with Superdrive. Required footage is imported via a Laird 5500 transcoder, sequenced in Avidexpress and a DVD is burnt with relevant chapter information enabling instant access to replay segments.

The Avidexpress has also provided clips of the show for the tour website and a behind the scenes tour highlights package is currently in production.

Five camera coverage of the show is provided by 3 x Sony D35WSP triax cameras and 2 x Sony XC999 miniature cameras on the drums and keyboards. A Fujinon 44-1 lens provides long lens coverage at a front of house position with the other 2 cameras with Fujinon 16-1 lenses positioned stage left and right in the pit.

For the acoustic first half of the show, where effectively "in the round" coverage is required, the 2 pit cameras are positioned at 3/4 front stage right and low angle stage left.

Camera operator "Handsome" Dave Hendy has mastered the technique of tracking his camera whilst seated in his trusty Officeworks chair - providing smooth camera movement and repositioning for upstage coverage. Whilst not pretty to watch (his feet effectively scuttle him along in a crablike motion!) the results are impressive.

ARENA SCREENS

Affectionately called the "Johnny in your face screens" by the onstage talent, the 5 large front projection screens are flown in the arenas. 2 x 20' x 15' screens with 2 x Barco G5 5,000 ANSI lumen projectors are flown either side of stage and 3 x 12' x 9' front projection screens with 3 x Barco 6400 3,500 ANSI lumen projectors are flown at the rear of the arena.

All projectors are fed a serial digital signal, resulting in impressive images of high resolution and clarity. These screens ensure that all members of the audience get to see every detail of the performance.

From instrument and vocal solos to the wide range of facial expressions from John, audiences from the front row to the back row do not miss any aspect of the show.

STAGE SCREEN

Big Picture has provided a 72' x 19' front projection surface which is flown at the rear of the stage with 3 x Barco R12 ELM 12,000 ANSI lumen projectors. The Projectors are fed 3 inputs:

- RGBHV from 3 x Catalyst systems operated by LD Chris Newman,



- serial digital, and composite video
Precise alignment of the projectors is required as the 3 Catalyst systems play files created for synchronous playback by Farnham's legendary producer, Ross Fraser. Projectors are software controlled by RS232 serial data with access to all alignment functions and input switching performed remotely. On several songs cameras are fed to the stage screen for multi image display

separate to the programme sent to the arena screens. Source switching for this is performed by the Leitch SDI router.

CREW : Director - Dennis Murphy
CCU/projection - Nick Bojda
Fo.ter operator/projection - Ray O'Sullivan
Camera/projection - "Handsome" Dave Hendy
Camera/system - Mark "BJ" Walkden
(One local camera operator also used in each city)



• Dennis took time to mention that the crew enjoy a very high morale on this tour. He said is largely due to John Farnham's professional approach and friendly attitude – the crew tend to feel a kind of "ownership" of the quality of the end result.

Big Picture would like to thanks Staging Connections (Viken Hekinian and Nadine Newell), Technical Directions, and Barco Australia for their support.

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Red Hot Chili Peppers on tour

Roof Failure in Adelaide

(See page 8, and for the full story: www.juliusmedia.com news.

Lighting crew chie Graham Jelly started work at 3pm, with 4 Bytecraft crew and 16 loaders.

"It wass sunset. We were laying out floor equipment, and had most of rig up and ready to go. The first of the upstage video walls was about to go in. The Americans had bought steel cable trays with them, these make a huge 'crack' sound when the drop the lid on. But we heard a different huge crack, and the riggers yelled 'standby!'

Andy Mutton was doing the front truss, and told me it had dropped foot and a half.

The riggers did a roof assessment, and found a crack on a weld.

"At the time, the upstage right one vid wall being done, and downstage stage left one side of the VDosc".

"I think as both took weight, that's what stressed the roof. It holds a lot of weight - the mother grid, Kabuki, video walls, the general weight of stage set and frames. Then we added 4 video walls, then flying PA".

Around 8pm the decision to move the show into Adelaide Entertainment Centre was taken.

"The riggers supervised as we took the weight off the roof. We loaded out slowly, everyone standing by as we brought in each truss. We packed and left everything in roadcases, under the stage in cases it rained. We loaded the trucks the next morning".

"It all worked out OK timewise. We were ready to go (in the Entertainment Centre) by 2pm.

What an outstanding effort!



Sound Engineer David Rat tells Connections about how he approaches his art....

Ausie Stadium is the venue of last resort for concerts, after U2 performed to extensive complaints in the mid 1990's. Concert promoters steered well clear of the acoustic nightmare until Barbra Sreisand appeared there in 2000, with legendary sound engineer Bruce Jackson ordering – and getting – extensive and expensive temporary acoustical treatments of the venue.

Peppers live sound engineer David 'Rat' had no such problem on a Friday night, with a V-Dosc system.

"I don't believe the venue was sold out, we knew that ahead of time, people weren't all the way into the back. I did not really have an issue with slap, since we didn't cover the upper sections".

As to the other nightmare at Aussie, which is alongside an affluent and upperclass housing area: "I had no complaints (about noise nevels), early on during line checks they asked me keep it down."

It appears the bogie of unwanted spill causing multiple reflections which rendered great areas of seating at the high sides and rear of the Stadium was defeated by those seats never really being planned for sale. Plus the V-Dosc system, with its clever measurement and analysis software, where all venue parameters are pumped in and a trim and distribution pattern is produced, produced the goods with minimum indirect audio escaping the property boundaries.

The VDosc system at Aussie had 15 cabinets a side for the main left and right arrays, with 3 D-Vdosc boxes under hung for nearfill. On each side were 9 boxes with 3 underhung D-V's – plus there were assorted infill boxes to cater to near stage areas. There were 32 sub woofers.

This configuration of 92 main boxes is about half that used by U2, whose system was made up of over 160 S4 cabinets plus subs – each weighing three times greater than a V-Dosc, and measuring four times greater in volume.

Once again the direct benefits of the acoustical gain and modern engineer-

ing of a line array is demonstrated. The S4 system weighed 40 tonnes before subs, while the V-Dosc rig scaled down at under 10 tonnes. More sound where you need it, one quarter the weight, and way less environmental 'noise pollution' complaints.

Mr Rat started with the Peppers in late 89, and has been with them consistently ever since. He is something of an alternate rock sound guru, working with the likes of Rage Against The Machine, and The Foo Fighters in between.

"Alternative Rock is mainstream rock now, its post punk" he says.

Out front he mixed the Peppers on a Midas Heritage



H3000 – and the same console spec was used on monitors. "We carry FOH (front of house) drive (console and effects) and monitors with us from the USA, and hire stacks, racks and powerfeed locally. In Australia, being a V-Dosc system, this means it came from Jands Production Services – the partner company to Jands (distribution).

"How would I characterise the sound? Over the years, the Chili sound has evolved, and gone through significant change. In the last tour, it started more like a Parliament T Funk kind of album or LP sound. That's not really sparkly up top, with real heavy lows. This tour has a lot more musical arrangements, the vocal work of Anthony came together, it's singing rather than that rap funky thing".

"It's real clean funk, it changes, and it's very dynamic, moreso than just about any band I ever mixed. It's a challenge. It still starts with a bang of a jam, then come in with a mellow song. The disparity between quiet songs and loud fast songs is just terrific. We augment that, a pattern follows on the setlist".

"I make some songs sound as different as possible, from mellow real hi-fi, to power stuff with more midrange push".

Until now, Rat has used his own Rat Trap PA system, as he owns Rat Sound in LA. "When we travel (outside the US) I take various systems – so there's a range of assets and detriments for each. On this tour I made a change to keep a consistent rig wherever we go. An identical V-Dosc setup was what we settled for as best of all worlds. It's not excentric, it's got sound quality and is very useable".

Back in the US, the RatPack system is made up of subs loaded with 2 x 18" drivers. The high-pack is a tiny little thing loaded with 2 x 15" low speakers, 2 x 10" mid speakers, a 2" throat compression driver and a 1" TAD ultra high device.

Interestingly it is run as a 5 way system. There's a reason for this. Rat likes to run the subs, and the ultra-high frequency TAD's, off desk auxiliaries. This way he can control what goes to them, and use them to augment certain styles of song. "The TAD 2001 tweeters cross in at 8kHz from the 2" driver. They have a Beryllium diaphragm and they go to 20kHz. They are stupidly expensive, and fragile, but sound like nothing else!"

Running an auxiliary send to them means hi-hats and cymbals can be sent there without guitars or vocals. "I can get that hi-hat swish, and slide 'em up on a slow song. It gives me extra layer control. This is the same pattern as subs on an aux send too, I can send stuff there and not let guitars or vocals down there. They are isolated".

But using a V-Dosc system, or indeed any non-five way PA – and most are not - this is not possible. "There is limited control, but an extreme level of consistency with V-Dosc".

The mic up and desk channel assignment goes like this:

Kick: Audix D6 (out of phase)
Also Kick: SM 91 (out of phase)
Snare top SM 98
Snare bottom SM 57 (out of phase)
Rack tom SM 98
Floor toms (x 2) SM 98
Hi-hats SM 98
Cymbals: KSM 32

Re: The cymbal mics: "These are underneath the china, ride, crash, cowbell, crash, and bell cymbals. They are all underheads. When up top on regular mic stands, they wiggle around, and I think the motion distracts visually."

Bass DI clean, which is direct off bass
Bass DI dirty, after FX pedals
Bass mic: SM 98
Guitar left, SM 57 panned hard left

Lighting the Red Hot Chili Peppers

By Mandy Jones

Scott Holthaus has been a rock and roll lighting designer since 1982, designing for some of the big names of the American music industry. Sepultura, Melissa Etheridge, Tenacious D and Jane's Addiction are amongst his regulars, as are the Red Hot Chili Peppers for whom he has been LD for the last five years. Scott was in Melbourne recently on tour with the Peppers and took some time out to speak to Connections.

From the outset, Scott emphasised he was more excited about the video and scenery elements of the current Peppers touring show than the lighting. Even with his impressive rig of over 100 intelligent fixtures, Scott was keen to talk about the overall show design.

Scott collaborated with his design partner Grier Govorko to come up with a scenic design that would integrate video and lighting together.

"To be honest the video was the most exciting part. I've been doing lighting for so long that it's the scenery that's the trip now. Being lucky enough to integrate the two is really great," said Scott.

"There are four 30 foot high towers that have LED video walls inside them and they're latticed like vertical blinds so that the video is kind of destroyed by it. Then there are eight 'pods' on pneumatic lifts and each one looks like the fat spoiler on a semi-trailer. They have assorted lights in them and they move up and down pneumatically. Then we have some 1 metre thick and 2.5 metre high smoke stacks that replicate one of those rotating lights that you would see at an airport. They each have two 5k bulbs in them so they're incredibly powerful.

"There are a couple of other cool ones that hang and we call them Chinese lanterns. They're like vertical blinds in a cylinder and they have two 5k bulbs inside them and when they spin they have the ability to compress which opens the fan blades so they open up like a Chinese paper lantern. They're all DMX controlled - all their opening and closing movement is run off the WholeHogII. We were so excited that they let us make them and then freight them around because it's so damn much money to do it."

The dominant trait in Scott's approach to lighting design is his avoidance of front truss or any key light from the front. On stage he has five trusses running the depth of the stage on Veri hoist motors - each one rigged with 4 x High End Studio Beam, 1 x Coemar SuperCyc and 3 x Martin Atomic



Gtr r/h, SM 57 panned hard right Gtr cent., Beyer M88 panned cent. *"Sometimes stereo effects (for the Guitar) are too wide, so the M88 is the centre image. I wanted something had a sharper top end, didn't have that 3K peak of a 57 – if I use SM 57's everywhere, the peak tends to be cumulative throughout, so I would pickup background noise throughout. For a couple of songs, I take the stereo mic's out and go to the mono one. The Beyer peaks higher at 4 – 5k, and has a warm low end. It's a smaller sound, heavier, chunkier, thinner on top. During the show I use the stereo and the mono to alter the balance fairly often".*

Acoustic guitar- DI

Vocal Flea: Audix OM7

Anthony: Audix OM7

John: Audix OM7

Rat uses plain desk EQ without any outboard preamps. "I gate the kick pair and the snare mic's on stereo gates, and the toms on a quad gate. The drum sound is solid coming off the kit, nothing fancy. It's minimalistic.

Effects are just three devices:

"Lexicon PCM 60, for pretty much all my reverb, on snare, toms and vocals, I change sends to it through the show. Just push the button, I like real old sound of that! The Eventide H3500, does all rest of my effects on vocals, and a Klark DN 780 reverb is there for the snare, to fatten".

The band are not specifically loud, says Rat. "They have nice stage volumes, very well together, they've always been a jam band, and have got levels down to where it all balances. They are not a hard band to mix! Once in the groove, they stay there, the band also mix themselves."

"I'm a very non intrusive mixer! If you put your sonic signature on, some snare sound, some crazy effect, you mark them with your ego. Really you just present what they're doing."

Rat has one eye on the digital console market, and likes the Innovason. "It's an exciting console for me, a super light-weight control interface. I could have 2 people carry the control surface everywhere, and just pick up the racks at each show. That would be wonderful". •

Lighting (continued)

Strobe with Wybron colour changer. There are also a couple of side trusses of the same look with 2.5k Juliat followspots with colour changers.

"A helluva lot of floorlight" is how Scott described the show's floor electrics. The upstage row consists of 16 x Studio Beams, 8 x SuperCycs, 12 Martin Mac2000 washlights and some Par 64's. Describing the Mac2000 as "unbelievable", Scott explained the Macs combined well with the SuperCycs to achieve the "mooshy" effect he wanted.

"The Mac2000 washlight is the most powerful soft light I've ever seen, and the SuperCycs are cool. There are certainly more powerful and reliable fixtures than the SuperCyc but they have their place in being an unbridled blur of light. Not having an edge of any kind is their best feature."

Scott also used 8 x Mac2000 hard edge fixtures which he loves for their output and reliability, but hates for their standard gobos which he described as "the worst gobos ever made for any light!".

Designing for a band of this calibre, Scott had the choice of any fixtures, but says he specified each fixture on its merit.

"I definitely choose the fixtures for their ability. I love the Studio Beams - they're powerful little lights and their beam is really concentrated. I make them work hard doing lots of strobe stuff and they're pretty reliable. I love the double shutter strobe and dimmer strobe at the same time so that they can flutter in and out - it's a great feature.

As for the Martin Atomic Strobes, Scott dubbed them "the coolest strobes ever".

"They're so good they hurt."

Multiply that pain by 60 and you get an idea of what Scott likes in a light-show.

"The Peppers' music is extremely dynamic so the show is really about that. I can't say we're making beautiful tableaux or Swan Lake scenes - it's all about the 60 strobes and going incredibly over the top when you need to. I'd be lying if I said it was any more elegant than that."

Interestingly, Scott hasn't bought in on the 'open white' design trend that has been doing the rounds since the U2 concert video came out. He described his approach to colour as the extreme opposite.

"We just take the colour wheel and spin it! I learned a lot of really cool colour combinations with Jane's Addiction that are absolutely wrong and gauche by definition, but they're so horrible and stark they look cool. Silly combinations like light greens and ambers together, or yellows and lavenders. They wouldn't work with another band but they do with the Peppers because the crowds don't really have an expectation of them -

they think that they're going to come out with a tubesock so anything you do that is silly is ok with them."

The irony for Scott is that he is working with one of the biggest bands in the world so he can get whatever he wants equipment-wise, and lots of it, but he's still a minimalist at heart.

"There are around 100 moving heads on this show and that's big for me. But I'm still a minimalist, so I don't use them all at once!

"The last few bands I've worked with I've had the luxury of using silhouette a lot in my design. I really love it and it always works. It's a dirty trick! I did this thing with Tenacious D with maybe 16 or 18 red par cans and just one open white par can on the floor behind each guy just shooting up from behind to give them that little ahhhhhh silhouette. That one par can was the coolest look I've ever had in my life! All this gear I have here and it's not near as cool as that one Tenacious D look. Silhouette is slam dunk. I really try not to get too washed out from the front... which is what everyone else does. If I have a trademark look to my designs then it's definitely no front truss."

The video rig included a standard five camera concert set-up, 2 x IMAG LED screens as well as the four LED screens in the main truss towers.

"I'm not a fan of those huge IMAG screens but you need to give the kids in the stadium a show. If you pay \$30 (US) to see your favourite rock star, you should be able to see them. You've got to be able to see their faces, and it should be lit so that you can at least see them. It can't be too arty or you're just ripping off the fans."



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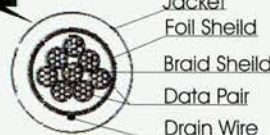
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MARKETREPORT

Welcome to our annual survey of Large PA Boxes available in the Australian pro-audio market. Included here are systems, composite boxes and subwoofers that output 500w or more continuous program power - our reference point for bigness.

As a general rule, we have included cabinets sized greater than 15" + horn, however some lower powered boxes and components may have been listed as part of a system configuration. Bottom line: any cabinet or system that delivers 500w and up continuously without breaking has been the aim. You may want to refer to our Small PA Boxes report (June 2002) for less powered speakers and systems or to compare specifications and prices. As ever, we advise looking to manufacture's specification sheets for further information on the products listed or contact the relevant distributor - as helpful experts they are more than happy to answer any product related questions.

This year's report is divided into two categories: Powered and Unpowered. Prices are 'per-pair' unless otherwise indicated and were correct at time of printing. GST is included in all amounts.

Unpowered PA Speakers (greater than 500w continuous power)

Celestion CXi 1022 (CXi) 10" 2-way Mid-high (120Hz - 20kHz), 500w LF 120w HF, Mid-high enclosure, Slimline; Rotatable horn, HF protection; 12 x M10's \$3,799

Celestion CXi 1811 (CXi) 18" Sub bass (45Hz - 450Hz), 600w, Horn loaded sub bass, Compact folded enclosure, 4" Voice coil \$2,999

Celestion CXi 1812 (CXi) Dual 18" Sub bass (30Hz - 500Hz), 1200w, Dual sub, Front loaded enclosure, 4" Voice coil \$3,999

>> Cerwin-Vega PS-155II (Prostax) 15" 3-way; FOH (50Hz - 20kHz), 600w @ 8Ω, Full-range or mid/high cabinet, Hand made: 3/4" Ply w/ 8 Flying Points, 101dB sensitivity \$2,499

Cerwin-Vega PS-18B (Prostax) 18" Folded horn subwoofer (40Hz - 350Hz), 800w @ 8Ω, Subwoofer for use w/ all Prostax series, Hand made: 3/4" Ply w/ Tolex Finish, 103dB sensitivity \$2,399

Cerwin-Vega T-250 (Intense) 10" 3-way; FOH (90Hz - 18kHz), 450w @ 8Ω, Mid/high cabinet for Intense series, Hand made: 3/4" Ply; 134dB (peak SPL), 108dB sensitivity \$2,699



Cerwin-Vega T-36/750 (Intense) 18"

Folded horn subwoofer (30Hz - 300Hz), 300w @ 8Ω, Subwoofer for use w/ T-250 mid/high cabinet, Hand made: 3/4" Ply trapezoid cabinet, 108dB sensitivity \$2,899

Crest Audio LQ12 12" 2-way (+/-3dB: 76Hz - 18kHz: -10dB 55Hz), 1000w, 90° x 45° Dispersion, Trapezoidal; Cast frame, Intern. tweeter protection circuit \$2,990

<<Crest Audio LQ15 15" 2-way (+/-3dB: 64Hz - 18kHz: -10dB 60Hz), 1000w, 90° x 45° Dispersion, Trapezoidal; Cast frame, Water resistant cone & dust cap \$3,990

d&b audiotechnik B2 sub ("C" Series) 2x18" Infra sub bass (32Hz - 68Hz), 2000w, Band-pass design; 136dB SPL, Polypropylene box; 102kg, Crossover protect circuitry; 5 year wty \$10,399

d&b audiotechnik C4-TOP ("C" Series) 12" + 2" HF; FOH (150Hz - 18kHz), 700w.



Passive crossover network: 136dB SPL; 75°x45°, Polypropylene box, 58kg, Crossover protect circuitry; 5 year wty \$5,899

d&b audiotechnik C7-TOP ("C" Series) 15" + 1.5" HF; FOH (44Hz - 13kHz), 700w, Passive crossover network; 135dB SPL; 75°x45°, Polypropylene box; 52kg, Crossover protect circuitry; 5 year wty \$9,699

d&b audiotechnik M2 ("M" Series) 2x12" + 1.4" HF; Monitors (50Hz - 17kHz), 1000w, 2-way Active high perf. monitor; 142dB; 45°x60°, Polypropylene box; 58kg, Crossover protect circuitry; 5 year wty \$7,999

DA5 ST-112 (Sound Touring Series) 12" 2-way (90Hz - 19Hz), LF: <00w; HF: 200w RMS at 32. 108dB SPL (1w/1m), Wisa Birch plywood, black, Bi-amplified / passive (crossover point: 1.200Hz) \$3,850

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Acoustic Technologies		+61 7 3376-4122	www.atprofessional.com.au	
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Cerwin-Vega	Audio Products Australia	+61 2 9669 3477	www.audioproducts.com.au	4 0
Crest Audio Inc.	Production Audio Services	+61 3 9415 1585	www.productionaudio.com.au	2 1
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DAS	Magna Systems & Engineering	+61 2 9417 1111	www.magnasys.com.au	14 4
DB Technologies	CMI	+61 3 9315 2244	www.cmi.com.au	0 8
Dynacord	EVI Audio (Aust)	+61 2 9648 3455	www.eviaudio.com.au	6 2
EAW (Eastern Acoustic Works)	Production Audio Services	+61 3 9415 1585	www.productionaudio.com.au	20+ 2
Electro Voice	EVI Audio	+61 2 9648 3455	www.eviaudio.com.au	20+ 0
FBT	LSW	+61 2 9568 2100	www.lswonline.com.au	2 2
Funktion One	Funktion One Australia	+61 3 9379 2433	www.funktion-one.com	10 0
HK Audio	Audio Products Australia	+61 2 9669 3477	www.audioproducts.com.au	6 0
Interlink	DB Sound	+61 2 9638 0777	www.dbsound.com.au	16 0
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Yorkville Sound	Dynamic Music	+61 2 9939 1299	www.dynamicmusic.com.au	18 5

Big PA Speakers

DAS ST-18 (Sound Touring Series) 18" Sub (35Hz - 300Hz), 600w RMS at 8Ω, 103dB SPL (1w/1m), Wisa Birch plywood, black, Catalyzed Polyurethane cabinet \$2,368

DAS ST215 (Sound Touring Series) Twin-15" (70Hz - 18kHz), LF: 800w; HF: 200w RMS at 8Ω, 108dB SPL (1w/1m), Wisa Birch plywood, black, 4" Titanium diaphragm \$6,490

DAS ST-218 (Sound Touring Series) Twin 18" Sub (35Hz - 300Hz), 1200w RMS at 8Ω, 102dB SPL (1w/1m), Wisa Birch plywood, black, Catalyzed Polyurethane cabinet \$4,429

Dynacord COBRA Compact Line-Array (38Hz - 18kHz), 9600w, Bi-amp; Complete system, Futura finish; Modular, compact, Complete system including speakers, rack & cables \$54,999

Dynacord Corus Pro 2 (Corus Pro) FOH sub & hi (48Hz - 18kHz), 1200w, 15" Sub & 12" 3-way tops, Mediapan 16mm ply; Coasters, Complete 4 box system w/ poles & wheels \$8,278

Dynacord Corus Pro 3 (Corus Pro) FOH sub & hi (40Hz - 18kHz), 1800w, 18" Sub & 15" 3-way tops, Mediapan 16mm ply; Coasters, Complete system including poles & wheels \$10,938

Dynacord LittleMax 2 (LittleMax) FOH / Monitor sub & hi (70Hz - 18kHz), 500w, 12" Sub & 10" 2-way tops, Mediapan 16mm ply; Five-side top for monitors, Complete 4 box system w/ poles \$4,668

EAW JFX200 2-way Multi-purpose (+/- 3dB: 90Hz - 16kHz; -10dB 60Hz), 500w, 90° Coverage, Asymmetrical, provides multiple mounting points, Switchable powering \$9,990

EAW JFX590 2-way Multi-purpose (+/- 3dB: 80Hz - 15kHz; -10dB 55Hz), 500w, High output; Natural reproduction, Asymmetrical, provides multiple mounting points, Suited to Omni-mount 300 hardware \$11,390

<< **EAW KF650z** Tri or bi-amped 3-way array system (+/- 3dB: 65Hz - 17kHz; -10dB 50Hz), 700w, High quality vocal reproduction, Trapezoidal; Universal suspension hardware, Extended pattern control for lower octaves \$20,990

EAW LA460 3-way Full-range array system (+/- 3dB: 62Hz - 20kHz), 500w, Exceptional speech intelligibility, Trapezoidal; 3x3 position fly points, Switchable powering \$14,990

Electro Voice DMS 2181 (Deltamax/XI) Dual 18" Subwoofer (37Hz - 200Hz), 1200w, Passive, Ply/Polyurethane, Mesh grille; Speakons \$11,022

<< **Electro Voice EVO 3 (Mongoose)** 60" x 40" Dual 15" & horn (45Hz - 18kHz), 1200w, Active / Passive, Carpet finish w/ dolly option, Crossover protect circuitry; 3 year wty \$10,350

Electro Voice XI 1152 (X-Array XI Series) 60" x 40" 15" & horn (50Hz - 18kHz), 675w, 2-way Active, Futura finish / top hat, Aeroquip fly hardware, top/bottom \$11,640

Electro Voice XLC 127+ (X-Line Compact) 12" / 2 x 6" / 2 x Horns (90Hz - 18kHz), 750w, 3-way Active / 2-way Active, Futura finish, Integrated flyware \$17,718

FBT FBT MaxX 6 15" 2-way Full-range; FOH / monitor (40Hz - 20kHz), 700w, 98dB Sens.; 129.5dB Max SPL, 25kg, LF 15" (3" Coil) HF 2.5" (1.4" Throat) \$2,999

FBT FBT MaxX 9s 15" Bass reflex subwoofer (40 - 125Hz), 900w, 97dB Sens.; 128dB Max SPL, Full-range & HPF output; 26kg, LF 15" (4" Coil) \$2,999

Funktion One F218 (Touring & Install) 2 x 18" Bass box for Res 4/5 (40Hz - 280Hz), 900w RMS, Abundant effortless deep precise bass, Finnish Birch; Horn-loaded; 88kg, Robust; Wheels & handles included \$7,700



Dynacord Corus Pro Family



Electro Voice
EVO 3
(Mongoose)

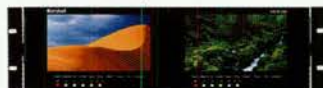


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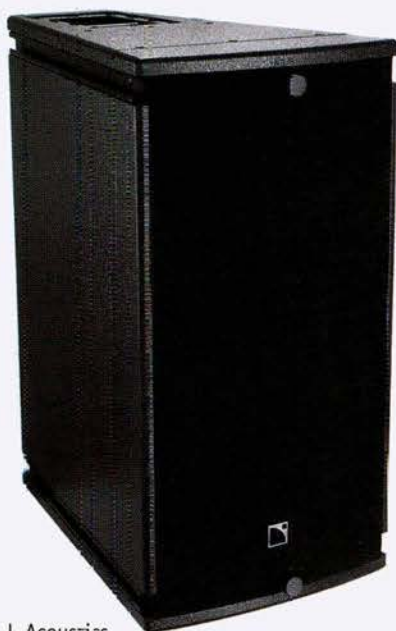


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L-Acoustics
ARCS (Wavefront: Sculpture Technology)

Some distributors sent in additional information about the models and brands they support which is included below:

Made in the U.S.A. since 1954, Cerwin-Vega is dedicated to enhancing the musical experience for people worldwide by means of acoustic research and providing unique high-performance loudspeaker products that embody innovation and technical excellence. Their design goal emphasises low distortion, high efficiency, and extended bass response that results in products with superior performance for dynamic musical impact.

The brand-new COBRA range from Dynacord is the world's first compact line-array system, they say. COBRA provides the acoustical advantages of line-array technology with the SPL capability of horn-loaded systems in combination with extremely easy handling. Designed for a multitude of indoor or outdoor applications, the Dynacord compact line-array system provides a very quick one-man set-up and can be ground-installed or flown to cover any application or installation challenge.

EVI Audio have listed two indigenous Electro Voice cabinets that are not available in the USA, the Mongoose and DMS 2181, and also included EV's most popular XI Cabinets (XI 1152) and the mic/hi section from the NEW X-Line compact system (XI 127+). X-Line outputs 141db, and at 40kilo's is a high powered compact package, currently on tour with The Rolling Stones (out fill), ZZ Top and Rod Stewart. The XLC comes with fly hardware integral to the box and an easy to use computer aiming programme.



Funktion One Resolution 2 (Install) 15"/8"/1" 3-way; Full-range; Small venues (45Hz - 17kHz), 530w RMS, Full-range; High sound; Solid bass to 50Hz, Compact, fully horn-loaded; 42kg, Passive c/over for HF; Fly points \$9,400
Funktion One Resolution 4 (Touring) 12"/8"/1" 3-way; High-mid; Medium venues (114Hz - 18kHz), 550w RMS, Wide dispersion, Identical size to Res5; Wheelboard inc.; 45kg, Inter-cabinet flyware & cable built into cabinet \$14,900

Funktion One Resolution 5 (Touring) 12"/8"/2 x 1" 3-way; High-mid; Large venues (114Hz - 18kHz), 600w RMS, Long throw; Extreme vocal clarity, Compact; Arrays beautifully; Wheelboard inc.; 49kg, Inter-cabinet flyware & cable built into cabinet \$16,200

Interlink Sonus 001 Dual 15" 3 way; FOH (40Hz - 20kHz), 1000w RMS, Front loaded; 130dB SPL; Dispersion 60 x 40°, H1240 x W570 x D460 (mm); Trapezoidal; Carpeted, Steel mesh grille; Staklok corners; Bar handles \$5,995

Interlink Sonus 002 Dual 15" 3 way; FOH (40Hz - 20kHz), 1000w RMS, Front loaded; 130dB SPL; Dispersion 60 x 40°, H570 x W1240 x D460 (mm); Trapezoidal; Carpeted, Horizontal version of S001 for flying above sub \$5,995

Interlink Sonus 004 Dual 15" 2 way; FOH (40Hz - 20kHz), 500w RMS, Front loaded; 129dB SPL; Dispersion 90 x 90°, H950 x W570 x D460 (mm); Trapezoidal, Compact cabinet w/ 1 x woofer & 1 x coax. \$3,500

Interlink Sonus 015 Single 18" Sub; FOH (35Hz - 1200Hz), 500w RMS, Front loaded; 126dB SPL, H620 x W570 x D840 (mm); Rectangular; Carpeted, Half of a S014; two stack exactly beside one S014 \$1,915

JBL AM6215/95 (Application Engineered Series) 15" High power 3-way; Full-range; Perm. install (45Hz - 17kHz (+/- 3dB)), 600w LF; 350w MF; 75w HF, 132dB (1w/1m); 90° x 50° rotatable wave guide, Trap. box; Duraflex finish; 13 suspension points, Bi-amp / Tri-amp; Compression loaded mid driver From \$ 2,695

JBL MP212 (Mpro Series) 12" 2-way Bass reflex; Portable sound (64Hz - 16kHz (+/- 3dB)), 1,000w (peak), 129dB SPL max (1w/1m); 70° x 70°, Black Duraflex (400 series); Laminar flow baffle, Affordable; Advanced design; Vented gap cooling From \$ 1,295

JBL SR4735/X (SRX Series) 15" 3-way Full-range; Portable sound (42Hz - 18kHz (+/- 3dB)), 600w LF / Passive, 131dB (1w/1m); 70° x 50°, Black Duraflex; Integral "flyclip" rigging system, Passive 3-way or bi-amp mode From \$ 2,995

JBL VT4889 (Vertec Series) Dual 15" 3-way High Direct; L-Array Element; Pro touring (45Hz - 16kHz (+/- 3dB)), 2000w LF; 1400w MF; 225w HF, 146dB SPL (peak @ 1m) 90° horizontal coverage, Extremely light weight (72kg) inc. rigging hardware, Industry's smallest & most powerful HF driver From \$ 11,495

Klipsch KI 215 (KI) Dual 15" Hi-bass / Lo-mid (60Hz - 1kHz), 800w, Dual 15" front loaded, Trap.; Black Birch enclosure, 16 x Flypoints; Textured finish \$3,499

Klipsch KI 362 (KI) 15" 3-way; FOH (60Hz - 18kHz), 500w, 15" LF; 1.5" Mid; 1" HF, Trap.; Black Birch enclosure, Crossover protect circuitry \$3,499

Klipsch KP 682 (KP) Dual 18" Sub bass (40Hz - 200Hz), 800w, Dual 18" front loaded, Rectangular; Black Birch enclosure, Casters; Textured finish \$4,999

L-Acoustics 115XT (XT Coaxial Technology) 15" + 1.4" Neodym. dual driver; FOH / Monitor (60Hz-18kHz), LF: 500w; HF: 175w, Axi-symmetrical 80°; SPL 122dB (cont.), Advanced flying hardware; Wedge shaped, Active 2-way; OEM presets for digital processors \$11,580

L-Acoustics ARCS (Wavefront Sculpture Technology) 15" + 1.4" driver on DOSC Waveguide; FOH / Sidefill (63Hz-18kHz), LF: 750w; HF: 200w, Asymmetrical 22.5° H x 60° V; SPL 129.5dB, Trapezoidal WST design; Integral flying syst., Active 2-way; OEM presets for digital processors \$20,800

L-Acoustics dV-SUB (SB Subwoofer Line) Vented band pass 3x15"; FOH / Monitors (40Hz-200Hz), 2400w, Optimised 40 - 200Hz bandwidth; SPL 127dB, Integral rigging suitable for MTD, XT, ARCS, High output; Compact; OEM presets for processors \$17,090

L-Acoustics MTD115b (MTD Coaxial Technology) 15" + 1.4" Dual concentric; FOH / Floor Monitor (65Hz-14kHz), LF: 530w; HF: 300w, Axi-symmetrical 85°; SPL 122dB (cont.), Integrated flying hardware; Wedge shaped, Switchable active/passive 2-way w/sense return \$10,420

Martin Audio H3 (BlackLine) 15" Full-range 3-way; FOH (50Hz - 18kHz), 800w AES, All horn loaded: 15+10+1"; 2-way configuration, Laminate Birch ply; 77kg; Black, \$6,595

Martin Audio W3 (Wavefront) 15" Full-range 3-way; FOH (55Hz - 18kHz), 750w AES, 15" + Horn loaded 10+1"; 2-way configuration, Laminate Birch ply; 32kg; Wavefront Grey, \$5,995

Martin Audio W8C (Wavefront 8) 12" Mid-high full-range 3-way; FOH (120Hz - 18kHz), 650w AES, 15" + Horn loaded 10+1"; 2-way configuration, Laminate Birch ply; 71kg; Wavefront Grey, \$9,995

Martin Audio W8L (Wavefront 8) 15" Full-range 3-way Line-Array (50Hz - 18kHz), 1,200w AES, All horn: 1x15" + 2x8" + 3x1", Laminate Birch ply; 115kg; Wavefront Grey, \$27,495

Nexo Alpha EF (Alpha) Full-range; FOH/sidefill (40Hz - 19kHz), 900-1400w @ 6Ω (L); 700-1000w @ 8Ω (H), Can be used as an active 2- or 3-way, Birch ply; Carpeted or painted finish; 95kg, 3 year wty \$24,600

<<Nexo Alpha System (Alpha) FOH (32Hz - 19kHz), 350-500 H; 650-900 M; 900-1200 L; 1800-2400 Sub., 4-way Active system; Fully horn loaded, Birch ply; Carpeted or painted finish, 3 year wty 10 box systems from \$93,000

Nexo LS1200 (PS) Subwoofer (30Hz - 120Hz), 800-1200w @ 4Ω, Can be used with PS15 bass extender, Birch ply cabinet; 49kg, 3 year wty \$9,790



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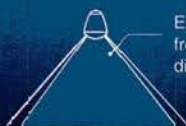
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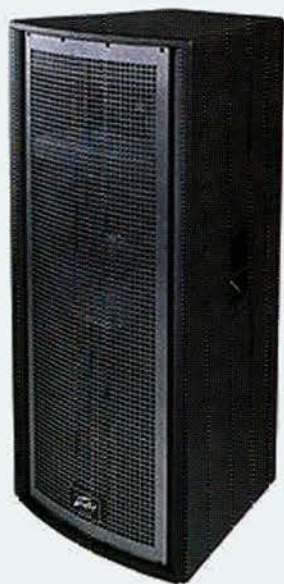


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BIG PA SPEAKERS



Peavey Q-wave4

Nexo PS15 (PS) Multi-purpose; FOH/FB (50Hz - 18kHz), 550-1200w @ 8Ω for 1 PS15 per chan., Passive crossover network; Active option, Birch ply cabinet; 32kg, 3 year wty \$11,990

Peak HPS-118 1x18" sub enclosure (35 - 250Hz), 600w RMS, 7/8 Plywood w/ carpet finish, Eminence cast frame speaker \$1,299

Peak HPS-1500 2x15" 2-way; FOH (40Hz - 20kHz), 1500w RMS, Passive c/over network; Solid bass to 50Hz, 7/8 Plywood w/ carpet finish, Crossover protect circuitry; 3 year wty \$2,295

Peak HPS-156R 15" 2-way; FOH (45Hz - 20kHz), 600w RMS, Passive c/over network; Solid bass to 50Hz, 7/8 Plywood w/ carpet finish, Crossover protect circuitry; 3 year wty \$1,399

Peak HPS-218 2x18" sub enclosure (35 - 250Hz), 1200w RMS, 7/8 Plywood w/ carpet finish, Eminence cast frame speaker \$1,995

Peavey Impulse1015 15" & Horn 2-way (60Hz - 18kHz), 1000w, Durable injection moulded cabinet; 3 handles, \$3590 or (1795 each)

Peavey Q-wave2 15" 3-way; FOH (45Hz - 20kHz), 1600w, 16 Gauge metal grille; Hammer head Polyure., \$6390 or (\$3195 each)

Peavey Q-wave218 Double 18" Sub (37Hz - 125Hz), 3200w, As above, \$6590 or (\$3295 each)

Peavey Q-wave4 Double 15" & Horn (52Hz - 18kHz), 2800w, As above, \$7990 or (\$3995 each)

Proel TFL-212P 2x12" 2-way Vented enclosure (55Hz - 18kHz), 600w RMS, Passive c/over network; Solid bass to 50Hz, 18mm Birch plywood w/ carpet finish, 70° x 70° Dispersion \$2,350

Proel TFL-215SP 2x15" Vented sub enclosure (40Hz - 250Hz), 800w RMS, 18mm Birch plywood w/ carpet finish, 8 x M10 Flying points \$2,095

>> **Renkus-Heinz STX4 (NEW!)** Bi-amp; 4x8"; 8" MF; 1" HF; FOH (50Hz - 18kHz), LF / M & HF: 800/150w, Proprietary active 2-way passive MF / HF c/over, Birch cabinets, Opt. Fly kit; 5yr w; Complex Conic Constant Direct \$9,999

Renkus-Heinz STX5 (NEW!) Bi-amp; 2x2"; 10" MF; 2" HF; Long throw; FOH (40Hz - 18kHz), LF / M & HF: 1000/300w, Proprietary active 2-way passive MF / HF c/over, Birch cabinets, Opt. Fly kit; 5yr w; Complex Conic Constant Direct \$16,799

Renkus-Heinz STX7 (NEW!) Bi-amp; 2x12"; 10" MF; 2" HF; High SPL; FOH (40Hz - 18kHz), LF / M & HF: 1000/300w, Proprietary active 2-way passive MF / HF c/over, Birch cabinets, Opt. Fly kit; 5yr w; Complex Conic Constant Direct \$16,799

Renkus-Heinz STX9 (NEW!) Bi-amp; 4x12"; 10" MF; 2" HF; High SPL; FOH (40Hz -



AustralAsian Music Industry Directory

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18kHz), LF / M & HF: 1600/300w, Proprietary active 2-way passive MF / HF c/over, Birch cabinets, Opt. Fly kit; 5yr w; Complex Conic Constant Direct \$20,099

Tannoy V15 (V Series) 15" Dual concentric; FOH / Mons (70Hz - 25kHz), 800w, 75° Conical dispersion; Passive c/over network, Integral handle; Birch ply/foam; Mesh grille; 32kg, Full-range passive or Bi amp 2-way; 5 year wty \$7,878

Tannoy V300 (V Series) 12" Super dual; FOH (50Hz - 23kHz), 500w, 90° Conical dispersion; Passive c/over network, Integral handle; Birch ply/foam; Mesh grille; 34kg, Full-range passive or Bi amp 2-way; 5 year wty \$10,194

Turbosound TCS59 (Turbo Contractor Series) 12" + 1" (60Hz - 20kHz), 580w, Passive crossover; CD horn, Birch plywood; Speakons & terminal strips, 131dB (peak) \$5,980

Turbosound THL2H (HiLight) 15" + 6.5" + 1" (55Hz - 20kHz), 600w, Passive & bi-amp modes, Birch plywood Recessed handles, Rigging points; Speakons; 90°H x 40°V Dispersion \$12,976

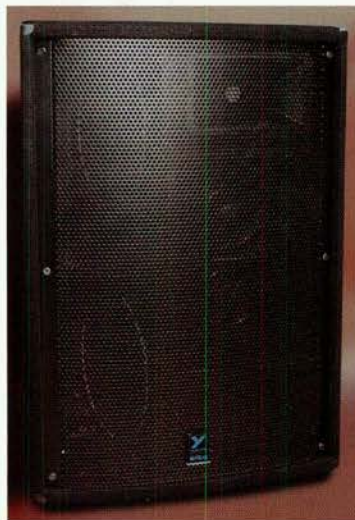
Turbosound TQ440 (Qlight) 10" + 6.5" + 1" (75Hz - 20kHz), 600w, Passive crossover; Patented Turbo-Mid device, Birch plywood; Recessed handles, Pole mount; Rigging points \$14,400

Vinal VS505 2-way Full-range; Larger venues; Arrays (35Hz - 19.5kHz), 1000w, Sens. -11dB; 60" x 60" Dispersion, 15" LF + 3" HF; HDF / Epoxy construction; 64Kg, 8° nom. Bi-amp ready \$3,599

>> Wharfedale Pro EVP-S12 & EVP155B (EVP-S Series) 12" FR & 15" Sub; Mobile/PA (60 - 20kHz & 40 - 250Hz), 600w, WPM 44mm conical dispersion, Carpet finish, Internal crossover \$2,798

Wharfedale Pro LA15 & 15SB (LA Series) 15" 2-way & 15" Sub; Live/PA install (45Hz - 20kHz & 30Hz - 150Hz), 500w, Passive c/over, Acoustic resin enclosure, ProTech \$3,598

Wharfedale Pro Lix-218SB (Lix Painted) 2x18" Sub; Installation (30Hz - 500Hz), 1200w, Low pass filter, Painted finish, 2 x 18" \$4,399



Wharfedale Pro Twin 12 & 15SB (Twin Series) 1x12" FR, 1x15" Sub; Mobile/Install (55 - 20Hz & 40 - 160Hz), 500w, Coax., Ameragard Finish, ProTech; Rigging track \$6,198

Yorkville Sound EF-508 (Elite Series) 2" Driver; 1.625" Throat; 15" Cast frame; 4" V-coil (50Hz - 19kHz), 500w, High slope 18dB per octave; Int. passive c/over, Ultra solid 13-ply; Current-to-light protection, Included hardware: 2 points on top & 1 pull back \$2,550

Yorkville Sound L-704 (L-Series) Dual 12"; Dual 6"; 2" Horn (45Hz - 16kHz), 700w, Ultra-clear reproduction throughout bandwidth. Bi-amp(able) - woofer / mid-high, Next gen protection network w/ LED indicators \$3,395

<< Yorkville Sound L-804 (L-Series) Dual 15"; Dual 6"; 2" Horn (55Hz - 16kHz), 800w, Highly efficient: More output from less power, Horn loaded cone; Mid-range drivers w/ phase plugs, Next generation woofer, driver & horn technology \$3,795

Yorkville Sound TL-3215 (TL-Series) Dual 15"; 1" / Dual tweeter (45Hz - 18kHz), 600w, 99dB Sens. (1w/1m), Back painted finish; Wheels & recessed handles, PTC Component protection; 2 year warranty \$1,995



Wharfedale Pro EVP-S Series

Wharfedale Pro LA Series



The drive units that **Funktion One** has incorporated into the Resolution Series have been designed to the point where the waveguides and drivers are contemplated as a single unit. The magnets used in the touring versions of the system are made from high-grade neodymium and contribute significantly to the overall weight minimisation of the enclosure. The nominal dispersion of the Resolution 5 is 25° horizontal by 20° vertical, with the Resolution 4 producing 50° by 25°. When arrayed Resolution generates a coherent wave almost devoid of inter-cabinet interference. A Resolution system uses at least 25% fewer enclosures than previous designs to achieve the same coverage with greater SPL.

HK Audio is firmly established as a respected name in professional sound reinforcement in Europe and has earned a reputation for producing live sound reinforcement systems of exceptional quality. The goal of HK Audio is to produce the "perfect" sound reinforcement system and to this end have forged a host of innovative active sound solutions for both semi professional and professional users.

JBL Professional subjects their designs to the most rigorous testing in the industry. As a result, the power rating specification of a JBL product may be lower than that of a competitive speaker which has less actual power handling capacity. Each system is tested for 100 hours at full rated power using IEC shaped noise which places greater demands on a speaker than real music. Our 100 hour power test subjects the speaker to more stress and strain than it would get in years of actual use.

Powered PA Speakers (greater than 500w continuous power)

Crest Audio LQ12p 12" 2-way; (+/-3dB: 61Hz - 18kHz; -10dB 55Hz), Bi-amp: Yes, 500w, Built-in compression, Trapezoidal; Cast frame, In excess of 130dB w/ music \$4,590

DAS Compact -1 (Compact Series) 15" 3-way (37Hz - 18kHz), Bi-amp: Active / passive c/over system, 1000w RMS; Class D amplifier, SPL 1w/1m: 133dB, 1000w Class D digital amplifier, Optional hanging system kit; 5 yr warranty \$6,100

DAS Compact 2 (Compact Series) 3-way Bi-amped system (50Hz - 19kHz), Bi-amp: Active / passive c/over system, 1000w RMS; Class D amplifier, SPL 1w/1m: 139dB, 1000w Class D digital amplifier, Optional hanging system kit; 5 yr warranty \$7,100

DAS Compact-18Sub (Compact Series) Front-loaded bass-reflex (40Hz - 150kHz), Bi-amp: Active / passive c/over system, 1000w RMS; Class D amplifier, SPL 1w/1m: 135dB, 1000w Class D digital amplifier, Optional hanging system kit; 5 yr warranty \$4,600

DAS SUB-118A (Active class D Sub) 18" Transducer w/ 3" voice coil (43Hz - 135Hz), Bi-amp: Internal active c/over w/ high-pass output, 500w RMS (93%); Class D amplifier, SPL 1w/1m: 102dB, 500w Class D digital amplifier, Optional hanging system kit; 5 yr warranty \$2,491

DB Technologies OPERA-4115 (Stage Series) 1x15" sub enclosure (30 - 150Hz), Bi-amp: Single input, 400w RMS, Mic/line inputs, HF Out; Stereo-crossover \$2,150

DB Technologies OPERA-4212 (Stage Series) Bi-amped 2x12" enclosure (50Hz - 20kHz), Bi-amp: Single input, 400w RMS, Mic/line inputs, 400w RMS, B&C speakers & horn driver \$2,450

DB Technologies OPERA-6118 (Stage Series) 1x18" sub enclosure (20 - 150Hz), Bi-amp: Single input, 600w RMS, Mic/line inputs, 600w RMS, HF Out; Stereo-crossover \$3,150

BIG PA SPEAKERS



Dynacord AM12



DB Technologies OPERA-8215 (Stage Series) Tri-amped 3-way enclosure (50Hz - 20kHz), Bi-amp: Single input, 800w RMS, Mic/line inputs, 500+200+100w RMS, B&C speakers & horn driver \$4,350

<< **Dynacord AM12 (Corus Pro)** Bi-amped 12" 2-way; FOH or monitors (60Hz - 30kHz), Bi-amp: Yes, 500w, 3-band EQ; Mic/line & aux inputs; Articulate sound, Limiters; Protection can link to passive partner, Monitor or pole mount with feet; 3 yr warranty \$1,999

Dynacord SUB 800A 15" Sub-woofer (42Hz - 200Hz), Bi-amp: 100Hz In-built crossover, 800w, 128dB SPL; Stereo crossover output, Limiters; Protection, TBC, 100mm Coasters; Pole mount \$3,299

>> **EAW EP2** 2-way Full-range (+/-3dB: 60Hz - 17kHz; -10dB 45Hz), Bi-amp: Internal bi-amplified, 950w, Substantial headroom, Trapezoidal, Fly-tracks; Threaded mounting points, Can be pole mounted on a speaker stand \$23,990

EAW EP3 3-way Full-range (+/-3dB: 62Hz - 18kHz; -10dB 45Hz), Bi-amp: Internal bi-amplified (passive LF/MF c/over), 950w, Distortion-free amplification, Trapezoidal; Fly-tracks; Threaded mounting points, Real-time current & voltage meters \$25,990

FBT FBT MaxX 6a 15" 2-way Full-range; FOH or monitors (40Hz - 20kHz), Bi-amp: Yes, 700w, 98dB Sens.; 128db Max SPL, LF 700w RMS+HF 200w RMS (Class G); 29kg, LF 15" (3" coil) + HF 2.5" (1.4" throat) \$5,499

FBT FBT MaxX 9Sa 15" Bass reflex subwoofer (40 - 125Hz), Bi-amp: Single input, 900w, 97dB Sens.; 126.5db Max SPL, 900w RMS (PWM Digital); Full-range; HPF output; 29kg, LF 15" (4" Coil) \$4,999



FBT MaxX 6a

HK Audio ACTOR (HK Active Systems) 2 Sub + 2 Mid-High; FOH (50Hz - 20kHz), Bi-amp: Individual amps per box, 2,400w, Complete system EQ; Smooth sound, 6 Amps powering 4x15"sub & 2x12" + horn satellites, Portability; System protections; Active crossover \$13,999

HK Audio ELIAS (HK Active Systems) 2 Sub + 2 Satellite; FOH (50Hz - 18kHz), Bi-amp: Tri-amplification, 1,200w, Complete system EQ; Smooth sound, 3 Amps powering 1x15"sub & 2x10" + horn satellites, Portability; System protections; 2 Additional amps \$6,399

HK Audio LUCAS1000 (HK Active Systems) 1 Sub + 2 Satellite; FOH (50Hz - 19kHz), Bi-amp: Tri-amplification, 900w, Complete system EQ; Smooth sound, 3 Amps powering 1x15"sub & 2x8" + horn satellites, Portability; System protections; Active crossover \$4,399

HK Audio PROJECTOR (HK Active Systems) 4 Sub + 4 Mid-High; FOH (43Hz - 19kHz), Bi-amp: Individual amps per box, 3,600w Complete system EQ; Smooth sound, 6 Amps powering 4x18"sub & 2x12" + horn satellites, Portability; System protections; Active crossover \$26,999

JBL EON15G2 (EON Series) 15" 2-way Full range; Portable sound (42Hz - 17kHz (+/-3dB)), Bi-amp: Bi-amp, Internal c/over, 1200w (peak), 117dB max @ 1m; 90° x 60°, 1x15" (LF) + 1x1" (HF); 10.4kg, Internal 3 input mixer & EQ; Pole Mount \$2,495

JBL EVOi.324 (EVO Series) Dual 14" 3-way, Full range; Perm. install. (48Hz - 16kHz (+/-3dB)), Bi-amp: Tri-amp; Internal c/over & DSP filters, 600w LF, 600w MF, 100W HF, 122dB max @ 1m; 80° x 80°, 2x14" (LF / MF) + 1x1.5" HF; 29.5kg, Auto EQ, Delay & Feedback reduction \$10,995

JBL MP4185P (Mpro Series) Powered 18" Bass-reflex subwoofer; Portable sound (40Hz - 120Hz (+/-3dB)), Bi-amp: Sub with external HF output, 2x660w, 135dB max @ 1m, 1x18"; 54kg, 2nd amp channel for external HF speakers \$4,495

Mackie FUSSION 3000 Active 3-way (45Hz - 20kHz), Bi-amp: Tri-amp; Main mix input; 35Hz /pass output to subs, 1300w, On-board acoustic management system, 1500+300+150w amps; 18mm Birch plywood, ATM hanging & flying hardware \$10,995 each

>> **Mackie SA1232** Active 3-way (38Hz - 20kHz), Bi-amp: Main input; Loop thru, 1300w, Electronic c/over; EQ; Phase/Time Alignment, 1100+100+100w; 13-ply Baltic Birch, 2x12" Low frequency drivers \$5495 each



L-Acoustics products offer both system designers and engineers many ways of providing solutions to any kind of audio application. The sales range comprises ARCS cabinets that incorporate Wavefront Sculpture Technology (WST) that functions by loading the high frequency drivers with the patented "DOSC" waveguide. New products include the XT Coaxial Speaker line (XT115 & XT112) and the upgraded MTD Range - the MTD108a, MTD112b and MTD115b are all loaded with coaxial transducers. The dedicated 115FM floor monitor also utilises coaxial technology, while the SB subwoofer series includes the dV-SUB, SB115, SB118 and SB218 sub bass cabinets.

All **Nexo** speaker systems operate with Nexo's NX241 Digital Controller or the appropriate TD series analogue controller. A Nexo processor features servo-limiting, system equalisation and time alignment, with algorithms that model cone excursion and voice coil temperature, and can make adjustments based on the specific speaker cabinet and components. This allows the speaker system to have the same tonal qualities at low volume as well as high volume. This advanced processing system has resulted in smaller than expected cabinet sizes with high power handling and high SPL's. NEW.

Renkus-Heinz ST/STX Series, a new range of 3-way powered and unpowered cabinets. The ST Series are tri-amp powered cabinets with a large range of hardware and finish options. It is one of the first speaker systems to have full CobraNet Digital Input facilities and RH's R-Control Network Supervision options. The STX Series is identical to the ST range, but without built in amplifiers. STX is an active 2-way cabinet with a passive MF/HF without the digital or control options available on board. R-Control for the STX Series is still available via RH's system specific outboard amplifiers and controllers. All cabinets are available in a weatherproof format for outdoor application.

Mackie SR1530 Active 3-way (40Hz - 20kHz), Bi-amp: Main input; Loop out, 500w , Electronic c/over; EQ; Phase/Time Alignment, 300+100+100w amps; 18mm plywood, Trapezoidal design \$3895 each

Mackie SWA1801 Active 900w (RMS) Subwoofer (35Hz -120Hz), Bi-amp: Stereo balanced input, 900w , Equalisation & mic/line inputs, smooth sound , 1200w (peak); 13-ply Baltic Birch plywood, Pole mount; Moving wheels \$4295 each

Meyer Sound CQ-1 Wide Coverage Main Loudspeaker 2-way: 15" LF+ 4" diaph. compression HF; FOH (36Hz - 20kHz (-6dB)), Bi-amp: Bi-amped / single line input, 620w per channel (burst), Uniform coverage over defined area, 620w / channel class AB/H MOSFET, Extended LF response \$7,750

Meyer Sound M2D Compact Curvilinear Array Loudspeaker 2-way: 2x10" LF+ 4" diaph. compression HF; FOH (60Hz - 16kHz (-6dB)), Bi-amp: Bi-amped / single line input, 350w per channel (burst), REM (Ribbon Emulation Manifold) HF horn, 350w / channel, Flat amplitude & phase response \$11,150

Meyer Sound MSL-4 Horn-Loaded Long-Throw Loudspeaker 2-way: 12" LF+ 4" diaph. compression HF; FOH (60Hz - 20kHz (-6dB)), Bi-amp: Bi-amped / single line input, 620w per channel (burst), Controlled High-Q coverage, 620w / channel class AB/H MOSFET, Very high peak output \$13,150

Meyer Sound MTS-4A Full-range Main Loudspeaker 4-way: 18"-15"-12" LF+ 4" diaph. compres. HF; FOH (30Hz - 17kHz (-6dB)), Bi-amp: Quad-amped / single line input, 620w per channel (burst), Integrated full-range system, 620w / channel class AB/H MOSFET, Built-in handles & casters \$17,250

Peavey Impulse1012P 2-way Powered speaker (68Hz - 18kHz), Bi-amp: Yes, 450w (woofer) 100w (Comp. driver), , Durable injection moulded cabinet; 3 handles, Weather resistant cones \$5190 or \$2595 ea.

Peavey Impulse1015P 2-way Powered speaker (56Hz - 18kHz), Bi-amp: Yes, 450w (woofer) 100w (Comp. driver), , Durable injection moulded cabinet; 3 handles, Flying points on top & bottom \$5590 or \$2795 ea.



Turbosound TQ440SP

Renkus-Heinz ST4 (NEW!) 4x8"; 8" MF; 1" HF; FOH (50Hz - 18kHz), Bi-amp: Tri-amp; Mic level input; Internal dividing network , L / M / H: 950 / 475 / 200 watts, Complex Conic Constant Directivity , Class D amps; Birch cabinets, Optiona. Flying kit; 5 yr wrnty; CobraNet & R-Control Option \$19,499

Renkus-Heinz ST5 (NEW!) 2x12"; 10" MF; 2" HF; Long throw; FOH (40Hz - 18kHz), Bi-amp: Tri-amp; Mic level input; Internal dividing network , L / M / H: 950 / 475 / 200 watts, Complex Conic Constant Directivity , Class D amps; Birch cabinets, Optional Flying kit; 5 yr wrnty; CobraNet & R-Control Option \$23,999

Renkus-Heinz ST7 (NEW!) 2x12"; 10" MF; 2" HF; High SPL; FOH (40Hz - 18kHz), Bi-amp: Tri-amp; Mic level input; Internal dividing network , L / M / H: 950 / 475 / 202 watts, Complex Conic Constant

Directivity , Class D amps; Birch cabinets, Optional Flying kit; 5 yr wrnty; CobraNet & R-Control Option \$23,999

Renkus-Heinz ST9 (NEW!) 4x12"; 10" MF; 2" HF; High SPL; FOH (40Hz - 18kHz), Bi-amp: Tri-amp; Mic level input; Internal dividing network , L / M / H: 950 / 475 / 203 watts, Complex Conic Constant Directivity , Class D amps; Birch cabinets, Optional Flying kit; 5 yr wrnty; CobraNet & R-Control Option \$26,699

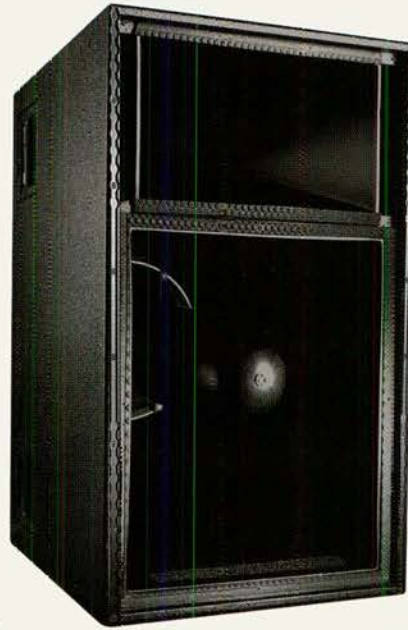
Turbosound TQ425SP (Qlight) 2x15" Sub (45Hz - 200Hz), Bi-amp: No, 1100w, , AB Amps; Birch ply box, Recessed handles / pole mount \$19,500

Turbosound TQ440SP (Qlight) 10" + 6.5" + 1" (55Hz - 20kHz), Bi-amp: No, 500w , Separate speech & music EQ , AB Amps: 300w HF+500w LF; Birch ply box, Internal rigging points; Handles; Pole mount \$18,000

>> **Yorkville Sound EF-500P (Powered Elite Series)** Bi-amped 15" & 2" Horn 2-way; FOH (60Hz - 18kHz), Bi-amp: HF amp: 150w (class H); LF amp: 650w (class D), 800w , +/-6dB Trim; Mic/Line input w/levels; EQ; 100Hz HP, 3/4" Ply; HF horn dispersion: 60° x 40°, XLR & TRS I/Os for easy connection & looping \$3,395

Yorkville Sound ES-700P (Elite Powered Subwoofer) 2x10" Drivers; Self powered 700w subwoofer (45Hz - 125Hz), Bi-amp: LF power amplifier 700w, 700w, Series loaded box design = high acoustic output, 2x350w 10" cast frame speakers, HF Cut-off control & main volume \$2,495

Yorkville Sound NX-520P (Powered NX Series) Single 12" at 450w & 1" Horn at 100w; Max SPL: 124dB (65Hz - 17kHz), Bi-amp: 550w output from proprietary bi-amped power module, 550w, Variable density composite material, Neodym. driver; New switching power supply; 17kg, Direct mic. input system & built-in mixer \$2,495



Meyer Sound MSL-4

Responding to input from the marketplace, **Tannoy** has launched the V series, a new range of Point Source Dual Concentric speaker systems. This new series features a

modern cabinet design that provides installation flexibility for a wide range of sound reinforcement applications from theme pubs, clubs, theatres, houses of worship, cinema, and acoustic concerts. Its asymmetric profile allows installation in a variety of configurations via the large range of Secur-ET mounting hardware, and flying is via integral M10 inserts. The series' cabinets are also fitted with an optional stand mount in base. Other available models include the V8 and V12.

Originally setting the touring bench mark with Flood and Flashlight, **Turbosound** have gone on to develop a large range of well featured installation enclosures. After establishing themselves in the UK nightclub market, they have gone on to produce first class stadium and church speaker systems that have become industry standards for their markets. Strange name ... SO WHAT!

All **Vinal** enclosures offer outstanding build quality and performance, together with well designed features. The VS505 will fly or stack happily.

At **Wharfedale**, every component of every loudspeaker is designed and manufactured in-house, with each loudspeaker containing parts unique to that range. We control the entire process to make sure that every product we produce adheres to our extremely high quality standards. This means Wharfedale loudspeakers are built to last! Take the Twin Series: painted with Ameraguard (that's what they use on truckbeds!) it features high power handling and sparkling sonic performance as standard plus a built-in driver overload protection system (ProTech). Last but not least, with Wharfedale, you get unbeatable value for your money.



Coming Soon...
Market Reports ONLINE!
www.juliusmedia.com



LG RL-JA20



**Editors
Choice**

	Epson EMP-TW100	LG RL-JA20
Resolution:	1280x720	1280x720
Imaging System:	1x 0.87" LCD	1x 0.87" LCD
ANSI Lumen Measured:	611	549
Weight:	4.2kg	4.2kg
Dimensions (WxHxD):	348x104x274mm	344x158x448.6mm
Vision Inputs:	DVI-I (digital and analogue RGB), 15pin HDD (RGB and component), Component, Composite and S-Video	DVI-I (digital and analogue RGB), 15pin HDD (RGB only), Component, Composite and S-Video
Vision Outputs:	none	none
Vision Source:	All standard TV, and computer signals up to UXGA	All standard TV, and computer signals up to UXGA
Price (rrp inc GST):	\$10,999	\$6,999
Distributor:	Epson Australia	LG Electronics
Sales Enquiries:	+61 2 9903 9000	1800 643 156
Internet:	www.epson.com.au	www.lge.com.au

Projector

One of the newer sectors of the projector market is the "wide screen" projector. Until recently, punters have only had the option for "top-of-the-line" expensive projectors, or the ultra-cheap (and poor quality) home theatre projectors if they specifically wanted a wide screen format projector.

However, we all knew that with the arrival of HDTV, 16:9 ratio projectors would be soon coming thick and fast. Two of the newest in this camp are the Epson-TW100 and the LG RL-JA20. We decided to pit these two against each other in a mini-shoot out to see what would happen...

WE START:

In terms of sheer specifications, these two projectors are near identical. Just look at the details on both projectors and you can see that they both use the same LCD Panel (possibly from the same OEM supplier), they both use roughly the same lamp, both have the same connections options, they weigh the same, are roughly similar sizes and have very similar light output. Both even had negligible levels of fans noise – which was a nice surprise.

All of this made the testing a little interesting because the differences between the projectors came down to how well the electronics handled the video image, and what the user interface was like.

On startup, both were fed a HDTV 1080i (60Hz) signal via component inputs. On the Epson, I used the 15pin HDD to supply the component signal, and after a few moments of "green" image, it was clear that it wasn't going to change the input type by itself. The user selection of a different video type at that input was easy enough to find, and then the projector happily displayed the image.

The LG didn't face this problem – because it didn't accept Component input on the 15pin HDD. Connecting the signal to the 3 RCA sockets, the projector took a little time to work out what sort of picture I was watching, but it got there eventually. However, I noticed that part of the picture was missing. In fact, the 1080i image was compressed slightly, and not displaying on the full 1280x768 image area despite it being a 16:9 source. I was unable to correct this via any projector menus, so I switched the DGTEC set top box to 576p output. Again, the image would not be displayed completely with the top and bottom of the image cropped. The only way to see the entire image was to set the STB to 576i (same output as a DVD), and adjust its "ARC" function to "Zoom 3" – this is not what I would call an obvious selection. As neither projector is able to display 1080i in native resolution, there was no visible advantage to showing the HDTV signal on either projector.

Setting both projectors to factory image settings, the images from both were compared simultaneously side-by-side. Broadcast and DVD images via component and video inputs were all displayed quite well. Each projector had a slightly different factory colour temperature setting. The Epson had a few fixed settings which could be individually tuned as required (the factory setting was a little too yellow for my liking), but the LG looked pretty good out of the box. Both projectors handled fast images very well, as well as displaying dark scenes visibly.

The LG seemed to look a little "sharper" in image quality, but

Shootout

By John Grimshaw

the difference was slight, and probably the result of the Epson's Faroudja image processing chip smoothing out the image. Certainly the Epson had absolutely no troubling in quickly re-scaling the image to full screen regardless of the input type. Epson's setup for stretching or zooming 4:3 images was far easier to use than the LG.

On to the pixel testing.

I fed each projector a 1280x768 RGB signal to see how it would handle wide aspect RGB. The Epson re-scaled and presented the whole image, while the LG gave me a pixel accurate image by chopping off the bottom 48 rows of pixels. From the point of view of testing the display, this was quite helpful. Other conventional display resolutions were scaled by both projectors quite well.

After calibrating both projectors to be at an 'ideal' brightness and contrast, and very close to each other for their renditions of red, green and blue, the first test to reveal significant difference between the projectors were the 256 grey scale ramps. A typical problem I will find with most displays (except the very best) is a 'lumpy' ramp. The LG projector gave a reasonably smooth ramp, with only the occasional lump. Also the transition from black to white appeared to be graded quite well. The Epson, however, seemed to jump a bit quickly from the darker greys in the 64 or so shades to the lighter ones. The result of this effect in images should be a subtle loss of detail in low light scenes.

Pixel accuracy was good enough, but if your intention is to mainly show computer graphics, then you may want to look at last month's Projector Shootout. That said, both performed extremely well with the RGB inputs, and even better with the DVI inputs. Certainly better than I expected for "wide screen" projectors.

And the Winner is...

Picking a winner from these two is difficult. Going purely from a technical viewpoint, the Epson certainly handled varying imaging types much better, and it is more likely that installers would use the composite RGB/Component 15pin HDD to switch between images. The ability to display 1080i properly is certainly a plus from my point of view, but this may not be so important for others. The Epson had a superior user interface, with features obvious as part of its in-built menu system.

On the other hand, the LG performs just as well as the Epson in the image quality stakes, and it can do a very nice dual picture display from any two inputs - (both side by side and reduced to fit at the correct aspect) - and it is \$4000 cheaper.

So, despite the better imaging ability and 'less complicated' user interface of the Epson, the LG is clearly better value for money.



Epson-TW100



Typical Uses

The extremely low ambient noise of each of the projectors featured, coupled with quite decent picture quality would make it ideal for corporate boardroom installations, film and video audio suites and high end domestic home theatre. Neither projector is especially bright, and while this has led to exceptional picture quality, these would have to be used in a controlled environment, or with a very good screen.

Connections would like to thank the following companies for equipment used in this review:

- DisplayMate - software for display evaluation
www.displaymate.com
- D3TEC Set Top Box from Anderson Audiovisual
+51 2 9586 3230
- Pioneer Plasma PDP-433 MXE (reference monitor)
from Pioneer 1800 060 852
- Kramer VP-4x4 Matrix RGB switching from AV
Technology +61 7 5531 3103

MARKETREPORT

It is finally time to refresh our most requested Lighting Market Report, and you will see that there are a number of new entries this time around.

As THE most comprehensive list of desks currently available in this market, we have standardised the questions we asked each manufacturer to give you the ability to compare the key features between brands.

While we have strived to ask a comprehensive range of questions, some product distributors were keen to point out that the more complex desks were much harder to describe under the strict rules of submission.

Our advice when browsing for a desk is (a) you really do get what you pay for (b) ask around other venues as to what they have chosen, and (c) definitely try a couple of desks before you jump at buying one.



Enttec DMXPlayBack



Jands ESPII 48

Small Lighting Desks - under 256ch or dedicated moving light control for less than 20 fixtures

Abstract Club 32 Controls 8 fixtures, has 10 pages of 8 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Club & Mobile. Description: Ergonomically designed tactile membrane control panel: hardwearing and drink-resistant with easy-to-understand buttons and indicator lights. Control Interface: Joystick for light beam positioning, Two control knobs for control of other functions: chase speed, crossfade time, colour fading, Strobe button for instant access to strobing effects. Backup via: RS232. Dimensions: 4U 19" rack mounting \$1,425

Abstract Club 64 Controls 16 fixtures, has 10 pages of 16 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Club & Mobile. Description: Backlit LCD display: gives step by step instructions and information allowing even inexperienced users to make full use of the controller, Ergonomically designed tactile membrane control panel. Control Interface: Joystick for light beam positioning, Two faders for control of other functions: chase speed, crossfade time, colour fading, Strobe button for instant access to strobing effects. Backup via: RS232. Dimensions: 4U 19" rack mounting \$2,299



Compulite Photon

Compulite Photon (122-001) Controls 256 DMX channels, has 99 pages of 20 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Small TV station, theatre, film set, etc. Description: 20 sliders, numeric keypad, dimmer wheel. Control Interface: N/A. Backup via: 3.5" floppy disc. Other Features: DMX Input, SMPTE, MIDI, Remote Bus, Printer port and RS232. Dimensions: 625 x 110 x 350 mm \$14,932

Compulite Spark (123-001) Controls 256 DMX channels or 24 moving lights, has 99 pages of 20 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application:

Small TV station, theatre, film set, etc. Description: 20 sliders, numeric keypad, dimmer wheel, trackball + 3 data wheels. Control Interface: Trackball for Pan/Tilt, dimmer wheel + 3 data wheels for parameters. Backup via: 3.5" floppy disc. Other Features: DMX Input, SMPTE, MIDI, Remote Bus, Printer port and RS232. Dimensions: 625 x 110 x 350 mm \$20,990

Elektralite CP10 Controls 128 DMX channels, has 600 cues pages of n/a Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Small venues with intelligent fixtures. Description: 6 faders and playback buttons. Control Interface: 6 faders and joystick. Backup via: Save internal to unit. Other Features: midi in/out, Audio trigger, 50 macros. Dimensions: 482x88x75 - 2RU rack mountable \$2,899

Elektralite CP16/24 Controls 384 DMX channels, has 210 cues pages of n/a Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Small venues with intelligent fixtures. Description: 6 faders and playback buttons. Control Interface: 6 faders and joystick. Backup via: Save internal to unit. Other Features: 16 fixtures of 24Ch per fixture, midi in/out, Audio trigger, 50 macros. Dimensions: 482x88x75 - 2RU rack mountable \$2,699

Enttec DMXPlayBack Controls 512 DMX channels, has 12 pages of 256 Scene masters (does not stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Standalone, Architectural, shop fronts. Backup via: Through PC software. Dimensions: 180x44x110 \$470

FX Range DMXMaster Controls 192 DMX channels or 16 fixtures, has 30 pages of 8 Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Nightclub, DJ, etc. Description: 8 sliders + access buttons. Control Interface: sliders. Backup via: None. Other Features: MIDI remote,

phase change for Martin fixtures. Dimensions: 485 x 120 x 35 mm (19" rack mount 3RU) \$499

Jands ESPII (24, 48 or 60) Controls 48/96/120 DMX channels (wide mode), has 30 pages of 12/24/24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and optional VDU Outputs. Typical application: Where memory playback functionality is required with Preset faders. Description: 2 preset 24/48 or 60 channel, chase, FX and XF controls. Backup via: Floppy Disk Drive as standard. Other Features: 3 softpatch tables. Dimensions: 640 / 1180 / 1495 (W) x 490 / 530 (D) x 110 / 115 (H) From \$3995

Jands Event (24 or 48) Controls 120 DMX channels (superwide mode), has 99 pages of 12 Scene masters (does not stack cues), unit has theatrical cue to cue playback and optional VDU Outputs. Typical application: Where advanced memory playback required.

BRAND	DISTRIBUTOR	PHONE	WEB	DMX Channels <256	>512
Abstract	Universal Lighting and Audio (ULA)	1800 648 111	www.ula.com.au	2	0 0
ADB	LSC Lighting Systems	+61 3 9561 5255	www.lslighting.com.au	0	0 4
Avolites	Universal Lighting and Audio (ULA)	1800 648 111	www.ula.com.au	0	0 10
Compulite	Coemar De Sisti Australia	+61 3 9467 8666	www.cdaust.com.au	2	1 9
Elektralite	Show Technology Australia	+61 2 9748 1122	www.showtech.com.au	2	1 1
Enttec	Enttec	+61 3 9819 2433	www.enttec.com	1	0 2
ETC	Jands Pty Ltd	+61 2 9582 0909	www.jands.com.au	0	0 7
Flying Pig/					
High End Systems	Universal Lighting and Audio (ULA)	1800 648 111	www.ula.com.au	0	1 3
FX Range	Coemar De Sisti Australia	+61 3 9467 8666	www.cdaust.com.au	1	0 0
Jands	Jands	+61 2 9582 0909	www.jands.com.au	9	2 2
LSC	LSC Lighting Systems	+61 3 9561 5255	www.lslighting.com.au	0	3 3
MA Lighting	Show Technology Australia	+61 2 9748 1122	www.showtech.com.au	0	1 5
Martin	Show Technology Australia	+61 2 9748 1122	www.showtech.com.au	6	2 8
Robe	Universal Lighting and Audio (ULA)	1800 648 111	www.ula.com.au	3	0 0
SGM	Universal Lighting and Audio (ULA)	1800 648 111	www.ula.com.au	0	1 0
ShowCAD	Coemar De Sisti Australia	+61 3 9467 8666	www.cdaust.com.au	0	0 2
Strand Lighting	Bytecraft Entertainment	+61 3 8710 2555/+61 2 8344 3800	www.bytecraftentertainment.com	3	2 3
Theatrelight	Theatrelight	(NZ) +64 9 622 1187	www.theatrelight.co.nz	7	0 3
Zero 88	Clearlight Shows	+61 3 95531688	www.clearlight.com.au	3	2 3

Lighting Control

Description: 2 preset 24 or 48 channel, Assign Masters for memories, chases and stacks. Control Interface: Dipless crossfading and build functions make moving light control easier. Backup via: Floppy Disk or M-Card options available. Other Features: 3 softpatch tables. Dimensions: 690 / 1220 (W) x 530 (D) x 110 (H) From \$4995

>> **Jands Event Plus (48 or 60)** Controls 252 DMX channels (superwide mode), has 99 pages of 24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and optional VDU Outputs. Typical application: Where memory playback functionality is required with Preset faders. Description: 2 preset 60 channel, chase, FX and XF controls. Backup via: Floppy Disk or M-Card options available. Other Features: 3 softpatch tables. Dimensions: 1220 / 1500 (W) x 530 (D) x 110 (H) From \$7995

Jands Stage (12 or 24) Controls 24/48 DMX channels (wide mode), has 1 pages of 2 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Schools, churches and other small venues where basic control required. Description: 2 preset 12 or 24 channel, wide mode, 2 grabs, chaser. Other Features: Audio Triggering. Dimensions: 434 or 705 (W) x 288 (D) x 80 (H) From \$1145

>> **Martin 2518** Controls 72 DMX Channels, has 30 pages of 6 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Small clubs, bands and mobile DJ. Description: 6 faders, Page select buttons. Control Interface: via faders or playback from LJ. Backup via: on board or via rs232 to Lightjockey. Other Features: Midi trig, internal mic, . Dimensions: 483x65x89 - 4RU rack mount \$1,099

>> **Martin Freakie** Controls 168 DMX Channels, has 10 pages of 12 Scene masters (does not stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Small venue with up to 4x 12way dimmer racks. Description: 12 faders, joystick, playback buttons. Control Interface: via fader and Joystick control. Backup via: Internal storage. Other Features: Audio trigger, Midi in/out, Live joystick control feature. Dimensions: 482x176x95 5RU rack mountable \$1,699

Martin MC Showtime Controls 32 fixtures, has 30 pages of N/A Scene masters (does not stack cues) and No VDU Outputs. Typical application: Playback to suit Martin MX scanners. Description: 8 playback buttons. Backup via: Data save in unit. Other Features: pre programmed with 30 different shows. Dimensions: 140x110x62 (rack mount kit available) \$399

Martin MC X Controls 32 fixtures, has 1 pages of 7 Scene masters (does not stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Programmable user interface suits architectural installations. Description: 8 playback buttons. Backup via: Data save in unit. Dimensions: 140x110x62 (rack mount kit available) \$399

Robe Show lighting DMX Control 192 Controls 12 fixtures, has 3 pages of 12 Scene masters (which can stack cues) and No VDU Outputs. Typical application: Club & Mobile. Description: 40 freely programmable programs with up to 99 steps each, Up to 500 scenes can be memorized, joystick, Fade-in time and step time adjustable via 2 faders, Times are recordable and modifiable in "real time", Audio, manual and auto trigger. Backup via: memory card. \$1,859

Robe Show lighting DMX Control 24 Controls 4 fixtures, has pages of Scene masters (does not stack cues) and No VDU Outputs. Typical application: Club & Mobile. Description: Compact "Plug and Play" DMX controller, 10 built-in programs, 3 trigger modes: auto, music and manual (step by step), Slow, medium, fast and random speeds of Pan and Tilt movements, Built-in microphone and audio input, Manual strobe and black-out control. \$394

Robe Show lighting DMX Control 24 Pro Controls 4 fixtures, has pages of Scene masters (does not stack cues) and No VDU Outputs. Typical application: Club & Mobile. Description: 10 built-in programs and 10 user programs, Each program can contain up to 32 steps. Joystick, 3 trigger modes: auto, music and manual, Slow, medium, fast and random movements, Built-in mic and audio input connector, Manual strobe and black-out control. \$646

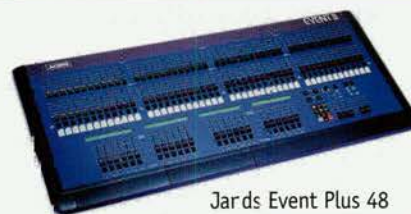
Strand Lighting Strand 100 Series (12/24) Controls 24 DMX Channels (wide mode), has 1 pages of 2 Scene masters (does not stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Small venue with up to 2x 12way dimmer racks. Description: 2x 12 channel sliders with flash and master controls, robust metal build. Control Interface: No. Backup via: No. Other Features: DMX512 output, Hold function in single scene mode, built in effects. Dimensions: 433x88x310mm rack mountable \$855

Strand Lighting Strand 200 Series (12/24) Controls 24 DMX Channels (wide mode), has 2 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 optional VDU Output. Typical application: Small venue with up to 2x 12way dimmer racks. Description: 2 x 12 ch faders, flash buttons, preset masters, time faders, effects tiles. Control Interface: No. Backup via: Yes, flashcard. Other Features: Up to 24 effects with up to 99 steps. Split crossfader & time fade function. Dimensions: 660x120x310mm \$2,090

Strand Lighting Strand 300 Series (24/48) Controls 50 DMX channels and plus 50 attributes, has 5 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 standard and 2 optional VDU Outputs. Typical application: Small to medium professional venue up to 1024 DMX devices. Description: 2 x 12 ch 2 preset modules, 1 x 24 submaster module, 1 x master module. Control Interface: Intelli-trackball mouse, fixture library. Backup via: Internal Memory, 3.5" disk or ethernet, . Other Features: Software & hardware upgradable to 600 Channels, moving light ready. Dimensions: 660x120x330mm \$11,000

Theatrelight Cuemaster 120 (TLCUE120) Controls 120 DMX Channels, has 10 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Theatre, schools. Description: 120channel, 24 scemenaster, crossfade, speed, scenefade faders, flash buttons. Control Interface: NO. Backup via: Yes Memory card. Other Features: View help information screen, desk lites optional. Dimensions: 1250mmx490x115mm \$4,595

Theatrelight Cuemaster 48 (TLCUE48) Controls 48 DMX Channels, has 10 pages of 24 Scene masters (which can



Jands Event Plus 48



Martin 2518



Martin Freakie

Each of the distributors were offered the option of supplying some additional words about their brands. Here is what they had to say:

ADB is one of Europe's leading manufacturers of lighting control equipment, luminaires and suspension systems. The Vision and Phoenix range of lighting consoles offer a complete solution to lighting control with ethernet, DMX, MIDI, Audio, RS232 and remote riggers control connections as standard.

Avolites are dedicated to producing the very best control solutions for all aspects of the professional lighting industry. The company has focused on, listened to and built upon end-user feedback which has allowed continual development and evolution of the product range. Avolites equipment utilises cutting-edge technology whilst retaining the accessible, intuitive, hands-on familiarity for which Avolites' products have become popular and renowned.

(cont over)



Strand Lighting 100 Series



Strand Lighting Strand 200 Series

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LIGHTING CONTROL DESKS



Theatrelight Scenemaster 3F 24/43



Comulite Rave



Elektralite CP20

Avolites also believe 'the people' part of the equation is vital in ensuring their position as market leader is maintained. The company comprises a creative, motivated, positive and lateral thinking team of individuals who will ensure a successful and progressive future for the company."

Comulite produced the 1st solid moving light console back in 1985 for the Telescan fixture. Since then they have been a major innovator in the world market. Recent shows include The Logies, Footy Show, Millionaire, Weakest Link, Miss Saigon and numerous others.

Jands Event 408



Jands HOG 500

LSC maXim - M



stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Theatre, schools, rental. Description: 48chn, 24scenemaster cross fade, speed faders, flash dba cue go buttons. Control Interface: NO. Backup via: Yes Memory card. Other Features: Tri colour LEDs indicate state of scenemaster fader ie chase, scene, show. Dimensions: 750mmx490x115mm \$3,495

Theatrelight Scenemaster 3F 24/48 (TLSC48VGA) Controls 48 DMX channels, has 10 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Description: 24 presets 12 scene, chase, cross fade, speed faders. Control Interface: NO. Backup via: Yes Memory card. Other Features: Printer port, Dynamic display. Dimensions: 660mmx345x95mm \$2,395

Theatrelight Scenemaster 3F12/24 (TLSC24VGA) Controls 12/24 DMX Channels, has 4 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Theatre, schools, rental. Description: 24 preset, 12 scene, chase show faders record cue go fade hold buttons page. Control Interface: NO. Backup via: YES Memory card. Other Features: Memory card, Dynamic monitor display, cue printout. Dimensions: 440mmx345x95mm \$1,895

Zerc 88 Elara (12/24) Controls 24 DMX Channels (wide mode), has 2 pages of 24 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Small venue with up to 2x 12way dimmer racks. Description: 2x 12 ch sliders time X fade, grand master, flash buttons. Control Interface: N/A. Backup via: desk memory can be saved to a memory module via rear D type socket. Other Features: audio Input /remote trigger. Dimensions: 420 x 90 x 480 \$1,568

Zerc 88 Elara (24/48) Controls 48 DMX Channels (wide mode), has 2 pages of 48 Scene masters (does not stack cues) and No VDU Outputs. Typical application: Small venue with up to 4x 12way dimmer racks. Description: 2x 12 ch sliders time X fade, grand master, flash buttons. Control Interface: N/A. Backup via: desk memory can be saved to a memory module via rear D type socket. Other Features: audio Input /remote trigger. Dimensions: 730 x 90 x 480 \$3,069

Zerc 88 Frog (24/48) Controls 48 DMX Channels (wide mode), has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Theatre, school, rental company, av company band. Description: 2x24 sliders 12 subs 400stack memory master Go button chase modifiers. Control Interface: N/A. Backup via: 3.5" disk. Other Features: Monitor out keyboard input. Dimensions: 607x110x570 \$4,994

Single DMX Universe (only 512 channels)

Comulite Rave (223-002) Controls 100 DMX channels + 40 moving lights + 20 specials (strokes/smoke/etc), has 40 pages of 20 Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Small venue, school, production company, trade shows. Description: LCD touchscreen, joystick, 20 faders + G/Master, dedicated function buttons. Control Interface: 3 Jog dials with ICBF, LCD touchscreen + Joystick. Backup via: 3.5" floppy disk, internal hard disk, ActiveSync or ethernet. Other Features: Full Effects Editor, MIDI, SMPTE, Audio, DMX In, link to WYSIWYG + MSD. Dimensions: 520 x 100 x 370 mm (rack mount version optional) \$11,674

Elektralite CP20 Controls 512 DMX channels or 24 Fixtures, has 960 cues pages of 8 Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Venue/band needing medium size controller with full moving light control. Description: 24 faders, Pallet buttons for 96 focus positions. Control Interface: 24 faders and Joystick. Backup via: 3.5" disk. Other Features: Option wood surround (XT model), softpatch, 48 macros. Dimensions: 480x400x127 Rack mountable \$6,999

Flying Pig/High End Systems Handshake Controls 512 DMX channels, has pages of Scene masters (does not stack cues) and No VDU Outputs. Typical application: While Handshake is ideal as a riggers remote, with playback of upto 256 cues, functionality includes RDM talkback. Description: A hog in your Palm. With its real-time internal clock, the Handshake output module can run a show on its own with or without the Palm Organizer attached. \$1,966

Jands Event 408 Controls 60 Fixtures, 240 Fader channels or 512 DMX channels, has 99 pages of 8 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Applications where both manual fader and moving light control required. Description: 2 preset 24 channel, moving light encoders/palette buttons. Control Interface: Fixture library, 3 encoder wheels, 3 pages of 20 palette buttons. Backup via: 3.5" disk drive. Other Features: Parameter playback and timing masks for ICBF. Dimensions: 815x530x145 \$8,995

Jands HOG 500 Controls 512 DMX channels, has Virtually Unlimited pages of 8 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Anywhere advanced moving light control required. Description: Dedicated moving light controls plus keypad control of desk channels. Control Interface: Fixture library, 3 encoder wheels, virtually unlimited palettes. Other Features: MIDI, SMPTE, Astronomical timeclock playback. Dimensions: 660x395x140 \$17,495

LSC maXim - M (MAX/M) Controls 512 DMX channels, has 9 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 optional VDU Outputs. Typical application: Rental cos, schools, exhibitions. Description: Fader based with quick access playback features. Control Interface: faders. Backup via: 3.5" disk optional. Other Features: electronic labelling, universal power supply. Dimensions: 716 x 115 x 340 \$3,245

LSC maXim - MP (MAX/MP) Controls 512 DMX channels or 20 Fixtures, has 9 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Rental cos, schools, exhibitions, small theatres. Description: Fader based with quick access playback features and dedicated ML controller. Control Interface: PaTPad touch screen with virtual wheels and buttons. Backup via: 3.5" disk. Other Features: electronic labelling, groups, palettes, presets, filters, etc.. Dimensions: 656 x 165 x 515 \$6,105

LSC maXim - S (MAX/S) Controls 512 DMX channels, has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 optional VDU Outputs. Typical application: Rental cos, schools, exhibitions. Description: Fader based with quick access playback features. Control Interface: faders. Backup via: 3.5"

disk optional. Other Features: electronic labelling, universal power supply. Dimensions: 500 x 115 x 340 \$2,145
MA Lighting MA Scancommander (200) Controls 480 DMX channels or 16 Fixtures, has 4 x 40 pages of 40 Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: Venue needing professional theatrical effects and some moving light control. Description: Jog Control for moving lights, touch screen palettes, games 4 boring plots. Control Interface: 3 Jog dials, with features automatically set after palette selection. Backup via: PC Cue Card disk. Other Features: Comes with Roadcase and desklights. Dimensions: 800x200x600 POA

Martin Lightjockey PCI Controls 512 DMX channels, has N/A pages of N/A Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Clubs/Installation/Architectural. Description: PC Based on screen. Control Interface: Mouse/ Hotkeys on standard keyboard. Backup via: 3.5" disk drive or Internal HDD. \$2,999

Martin Lightjockey USB Controls 512 DMX channels, has N/A pages of N/A Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Clubs/Installation/Architectural. Description: PC Based on screen. Control Interface: Mouse/ Hotkeys on standard keyboard. Backup via: 3.5" disk drive or Internal HDD. \$2,999

SGM Pilot 2000 Controls 40 fixtures, has 2 pages of 20 Scene masters (which can stack cues) and No VDU Outputs. Description: large back-lit display, editable internal libraries, 40 chases/Programs/Presets/Psychos, dedicated moving light buttons, SMPTE, independent scene & preset times, Audio input & built-in mic, MIDI in/thru/out, Data and memories can be downloaded to a PC.. Backup via: RS232. Dimensions: 4U rack mounting \$3,227

Strand Lighting Strand 300 Series (400 ch) Controls 400 channels plus 400 attributes, has 5 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 standard and 2 optional VDU Outputs. Typical application: Venue needing professional theatrical effects and moving light control. Description: 1 x 24 submaster module, 1 x master module. Control Interface: Trackball mouse, fixture library. Backup via: Internal Memory, 3.5" disk or ethernet.. Other Features: Full memory desk, upgradable to 600 Ch, moving light ready. Dimensions: 800x200x600 \$28,500

Strand Lighting Strand 500 Series (520i) Controls 250 Channels plus 250 Attributes, has 6 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 standard and 4 optional VDU Outputs. Typical application: Venue needing professional theatrical effects and moving light control. Description: 24 submasters; command, function & effects keypads;playbacks, go button. Control Interface: Trackball, rotary control and option keys. Backup via: Internal Memory, 3.5" disk or ethernet.. Other Features: multi-function wheel; user programmable keys; fixture library. Macro panel. Dimensions: 870x170x590 \$29,000

Zero 88 Frog (24/48) Controls 48 DMX Channels (wide mode), has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Theatre, school,rental company,av company band. Description: 2x24sliders 12 subs 400stack memory master Go button chase modifiers. Control Interface: N/A. Backup via: 3.5" disk. Other Features: Monitor out keyboard input HTP LTP Proportional soft patch. Dimensions: 607x110x 570 \$4,994

Zero 88 Illusion (500) Controls 500 DMX channels, has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Theatre, school,church. Description: 12 xsub master 400 cues 2 x playback masters grand master Go button key pad. Backup via: 3.5" disk. Other Features: Monitor out keyboard input. \$10,200



SGM Pilot 2000



Strand Lighting Strand 300 Series

The **Enttec EVO** is the only desk to give provide users with features only found in the top of the range desks. Full ethernet support, intergation with visualisation software, motorised faders, multiple video outputs.... The DMXPlayBack is the perfect solution for any Unattended light show, shop front, architectural, museum, backup... With 100s in operation in Australia and around the world you can trust it to get the job done.

Flying Pig's Wholehog series of consoles is the natural evolution of lighting control surfaces that started with the original Wholehog console, progressed with the Wholehog II, and culminated in this, the most advanced console to date.

The Wholehog III Console is very similar in layout and syntax to the Wholehog II, but with significant improvements to the operating system, and sophisticated new features. The huge user base that is familiar with Wholehog II will soon feel right at home with the new Wholehog III Console, leaving time to concentrate on exploring the console's

(cont over)

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LIGHTING CONTROL DESKS



ADB PHOENIX 10



Avolites Azure 2000



Avolites
Sapphire 2000



Avolites Diamond IV Elite

advanced new features. For example, Wholehog III's automated fixture abstraction model allows users to address different types and brands of automated fixtures in a common language, and the fixtures will respond in a common manner - all of the colours blend the same way, all of the patterns rotate at the same speed. Not only does this speed up programming, but it also allows for "fixture portability", or the ability to program your show on Monday using a wash fixture from Manufacturer A, and then swap it out on Tuesday for a wash fixture from manufacturer B, without having to reprogram the show.

The **FX Range** is an economical, easy to use professional product designed for the DJ and Nightclub sector.

LSC - Designed to bring the "large" desk features into an affordable, easy-to-use platform to suit both the novice user and the industry professional. The maXim with the PaTPad moving light module fitted is now one of the most powerful, intuitive desks in its class.

ShowCAD (and the new Windows based Artist) is the original PC based DMX controller. Used at Crown Casino, Sovereign Hill, Star City Casino, Smorgies and numerous nightclubs and exhibitions.

Multiple DMX Universe Control (more than 512 channels)

ADB PHOENIX 10 (P10) Controls 4096 channels (no restriction on fixtures), has 99 pages of 48 Scene masters (which can stack cues) and 4 VDU Outputs. Typical application: Ideal for Large Theatres and Television studios. Description: theatre style keypad entry with live playback fields. Control Interface: Dedicated motion control with 4 wheels, LCD touch screen & trackball. Backup via: 3.5" disk, Hard Drive or ethernet. Other Features: Full tracking backup when connected to second desk. Dimensions: 1200 x 525 x 128 \$56,000

ADB PHOENIX 2 (P2) Controls 4096 channels (no restriction on fixtures), has 99 pages of 48 Scene masters (which can stack cues) and 2 VDU Outputs. Typical application: Ideal for Small Theatres and Television studios. Description: theatre style keypad entry with live playback fields. Control Interface: Trackball and keypad. Backup via: 3.5" disk, Hard Drive or ethernet. Other Features: Full tracking backup when connected to second desk. Dimensions: 727 x 525 x 128 \$19,500

ADB PHOENIX 5 (P5) Controls 4096 channels (no restriction on fixtures), has 99 pages of 48 Scene masters (which can stack cues) and 4 VDU Outputs. Typical application: Ideal for Medium sized Theatres and Television studios. Description: theatre style keypad entry with live playback fields. Control Interface: Dedicated motion control module with 3 wheels and trackball. Backup via: 3.5" disk, Hard Drive or ethernet. Other Features: Full tracking backup when connected to second desk. Dimensions: 980 x 525 x 128 \$40,700

ADB VISION 10/ST (V10) Controls 2048 channels (no restriction on fixtures), has 99 pages of 24/48 Scene masters (which can stack cues) and 4 VDU Outputs. Typical application: Ideal for Large Theatres and Television studios. Description: Modular, theatre style keypad entry with live playback fields. Control Interface: Dedicated motion control module with 4 wheels and trackball. Backup via: 3.5" disk, Hard Drive or ethernet. Other Features: Full tracking backup when connected to second desk. Dimensions: 1120 x 600 x 270 \$42,500

Avolites Azure 2000 Controls 4 dmx universes (total up to 200 fixtures & 200 dimmers), has 10 pages of 50 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Compact, the Azure is ideal for applications including clubs, architectural lighting control, theatre and television. Description: Utilising durable, water proof membrane technology with tactile feedback, and to assist programming there is a pre-loaded Attribute Palette with up to 200 entries, giving instant access to all possible colours, gobos, beam effects and positions. Backup via: 3.5" floppy drive. Other Features: supports optional graphics tablet. Dimensions: 44x40x12cm rackmounting \$13,000

Avolites Diamond IV Controls 8 dmx universes on board (more via ethernet), controls 1000 plus fixtures, has 200 pages of 28+128 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Designed for large-scale shows, festivals, concerts, events and multi-purpose venues. Addressing the needs of lighting designers needing fast, accurate and immediate control of numerous intelligent lights, conventional fixtures and other DMX devices. Description: The D4 retains the Avolites tradition of being built-to-last in all respects. Robust physical construction is coupled with full upgradeability using the in-built modem for internet connection whenever and wherever required. Control Interface: 8 hi resolution encoders and dedicated attribute selection keys. Backup via: Built in hard disk or 3.5" floppy drive. Other Features: latest technology including multi undo/redo, builtin modem and ethernet for networking, speech recognition. Dimensions: 146x41x120cm in roadcase TBA

Avolites Pearl 2004 Controls 4 dmx universes (total up to 240 fixtures & 240 dimmers), has pages of 15 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: from theatre and touring to film and television, Pearl is ideal for a wide range of applications. Description: Combines compact dimensions with plenty of power, designed for quick and easy programming and playback. The patching of moving lights and colour changers is as simple as patching a dimmer. Backup via: 3.5" floppy drive. Other Features: Supplied with PC applications: Avolites Visualiser, Pearl Simulation program and Cache Builder. Dimensions: 122x67x27 in roadcase \$29,700

Avolites Sapphire 2000 Controls 4 dmx universes (total up to 240 fixtures & 240 dimmers), has pages of 15 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Optimised for live theatre and musicals, Sapphire is equally at home touring. Description: powerful and unique feature is the Electronic Palette, offering 200 LCD text entries containing colours, positions, gobos, etc., electronically. Select Groups allows the operator to instantly select fixture groups, e.g. 'all odd', 'all even'. Backup via: 3.5" floppy drive. Other Features: Supplied with roadcase and graphics tablet. Dimensions: 127x35x106cm in roadcase \$59,000

Compulite Micron/Ovation (126-004) Controls 2048 channels or 192 moving lights, has 999 pages of 36 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 3 VDU Outputs. Typical application: Full feature console for concerts / TV / etc. Description: Numeric keypad, dimmer wheel, trackball, 4 data wheels, LCD touchscreen. Control Interface: Numeric keypad, dimmer wheel, trackball, 4 data wheels, LCD touchscreen. Backup via: 3.5" floppy disk, internal hard disk or ethernet remote computer. Other Features: Full tracking backup, wireless remotes, SMPTE, DMX In, MIDI, etc. Dimensions: 900 x 110 x 450 mm \$42,958

Compulite Sabre (125-002) Controls 3072 channels or 256 moving lights, has 999 pages of 64 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 3 VDU Outputs. Typical application: Full feature console for concerts / TV / etc. Description: Numeric keypad, dimmer wheel, 2 x trackballs, 8 data wheels, 40 Softkeys. Control Interface: Numeric keypad, dimmer wheel, 2 x trackballs, 8 data wheels, 40 Softkeys. Backup via: 3.5" floppy disk, internal hard disk or ethernet remote computer. Other Features: Full tracking backup, wireless remotes, SMPTE, DMX In, MIDI, etc. Dimensions: 900 x 110 x 450 mm \$66,728

Compulite Spark 4D (127-001) Controls 1536 channels or 192 moving lights, has 999 pages of 20 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Portable console for large concerts / productions / etc. Description: 20 sliders, numeric keypad, dimmer wheel, trackball + 3

data wheels. Control Interface: 3 Jog dials, with features automatically set after palette selection. Backup via: 3.5" floppy disk, internal hard disk or ethernet remote computer. Other Features: Full tracking backup, wireless remotes, SMPTE, DMX In, MIDI, etc. Dimensions: 520 x 100 x 370 mm \$27,624

Complite Vector Controls 32,768 channels or moving lights, has Unlimited pages of 1024 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 3 internal displays and 3 VDU Outputs. Typical application: Next Generation console for any application. Description: Keypad, 2 x trackballs, 8 data wheels, 3 x LCD TFT Colour t/screens. Control Interface: Keypad, 2 x trackballs, 8 data wheels, 3 x LCD TFT Colour t/screens. Backup via: 3.5" floppy disk, internal hard disk or ethernet remote computer. Other Features: Full tracking backup, wireless remotes, SMPTE, DMX In, MIDI, etc. Dimensions: 1100 x 125 x 480 T.B.A.

Elektralite CP100 Controls 1024 DMX channels, has 500 cues/100 chases pages of Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for Large shows/rock concerts etc. Control Interface: 8 jog wheels. Backup via: 3.5" disk. Other Features: Open architecture, so restrictions on numbers of cues. Dimensions: 674x115x317mm \$16,999

Enntec EVO Controls 2048 channels, has unlimited pages of unlimited Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Medium size shows with moving lights and dimmers. Description: 7 inch touchscreen LCD, 7 motorised faders, 3 encoder wheels, . Control Interface: 3 Jog dials, touch screen. Backup via: Internal Flash drive, 3.5" disk or ethernet. Other Features: Full ethernet automation, expansion modules, compact, light weight. Dimensions: 510x280x150 \$7,000

Enntec EVO Wing Controls , has pages of Scene masters (does not stack cues) and No VDU Outputs. Typical application: Additional control surface for EVO. Description: 20 faders with: choose, go, pause and flash keys and 40 userdefined keys. Control Interface: backlit trackball . Dimensions: 510x280x150 \$4,500

ETC Emphasis Controls 500 - 5000 channels, has 10 pages of 24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 3 VDU Outputs. Typical application: Ideal where advanced moving light control is required. . Description: Expression/Express/WYG interface removes 'double handling' of paperwork. Backup via: Emphasis Server (PC). Other Features: Compatible with existing Express and Expression consoles. . POA

ETC Express 125 and 250 Controls 125 - 250 channels, 1024 DMX channels, has 10 pages of 24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for theatres. Allows advanced, timed cue operation.. Description: keypad control of channels, 24 subs + cuelists. Control Interface: X/Y trackpad, preset focus, LTP channels. Backup via: 3.5" disk or ETCNet,. Other Features: Compatible with Emphasis, ETCLink, ETCNet and MIDI. POA

ETC Express 24/48, 48/96 and 72/144 Controls 96 - 240 channels, 1024 DMX channels, has 10 pages of 24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for theatres. Allows both fader operation and cuelist.. Description: Faders + keypad control of channels, 24 subs + cuelists. Control Interface: X/Y trackpad, preset focus, LTP channels. Backup via: 3.5" disk or ETCNet,. Other Features: Compatible with Emphasis, ETCLink, ETCNet and MIDI. POA

ETC Expression 3 Controls 400, 800 or 1200 channels to 1536 DMX channels, has 10 pages of 24 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for theatres. Allows advanced, timed cue operation.. Description: keypad control of channels, 24 subs + cuelists. Control Interface: Six pages of 5 encoders, external mouse or trackball,. Backup via: 3.5" disk or ETCNet,. Other Features: Compatible with Emphasis, ETCLink, ETCNet and MIDI. POA

Flying Pig/High End Systems HogPC Controls 4 dmx universes, has pages of 8 Scene masters (which can stack cues), unit has theatrical cue to cue playback and No VDU Outputs. Typical application: While common used a back



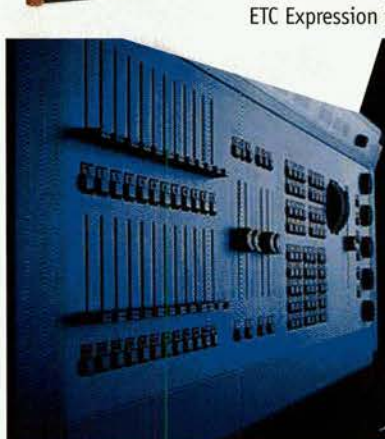
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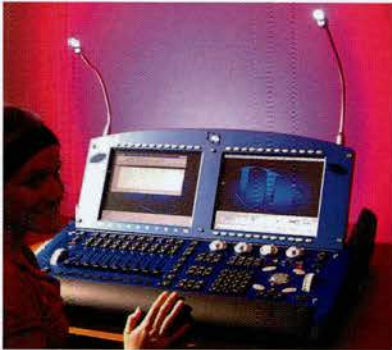
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up to a WholeHog, with the new USB MiniWings, Hog PC is finding a niche in television and corporate presentations. Description: PC interface simulates WholeHogII, optional MiniWings add real faders and controls via USB. Backup via: hard disk or floppy. Other Features: Special price until 31st Dec 2002. \$3,500

Flying Pig/High End Systems WholeHogII Controls 4 dmx universes, has pages of 8 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Description: Rugged aluminium powder coat finish, 100% solid state construction fully contained in console, Eight playback Masters- each able to run the most complicated cue lists or chases. Control Interface: 2 encoders, dedicated buttons for attribute and feature selection and two LCD touch screens. Backup via: 3.5" floppy drive. Dimensions: 668mm x 588mm x 153mm POA

Flying Pig/High End Systems WholeHogIII Controls dmx channels not limited, 8192 fixtures, has pages of 10 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Description: Precision machined Aluminium panels, cheeks & controls on Aluminium chassis - lightweight & low profile, tough anodised finish with wear-resistant anoprinted legends, Penny & Giles faders (custom), dual full colour touch screens. Control Interface: Two encoder wheels, 4 encoder knobs plus backlit track ball, dedicated buttons for attribute selection. Dimensions: 760mm (w) x 580mm (d) x 110mm (h) POA

Jands Event 416 Controls 60 Fixtures/240 Fader channels/1024 DMX channels, has 99 pages of 16 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Applications where both manual fader and moving light control required. Description: 2 preset 36 channel, moving light encoders/palette buttons. Control Interface: Fixture library, 3 encoder wheels, 3 pages of 20 palette buttons. Backup via: 3.5" disk drive. Other Features: Parameter playback and timing masks for ICBF. Dimensions: 908x530x150 \$13,495

Jands Hog 1000 Controls 1024 DMX channels, has Virtually Unlimited pages of 16 Scene masters (does not stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Anywhere advanced moving light control required. Description: Dedicated moving light controls w/ palette buttons. Control Interface: Fixture library, 3 encoder wheels, 64 tactile palette buttons. Backup via: 3.5" disk drive. Other Features: MIDI, SMPTE, Astronomical timeclock playback. Dimensions: 908x530x150 \$24,995

LSC maxM - LP (MAX/LP) Controls 1024 channels or 20 fixtures, has 9 pages of 42 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Rental cos, schools, exhibitions, medium theatres. Description: Fader based with quick access playback features and dedicated ML controller. Control Interface: PaTpad touch screen with virtual wheels and buttons. Backup via: 3.5" disk. Other Features: electronic labelling, groups, palettes, presets, filters, etc.. Dimensions: 797 x 165 x 515 \$7,535

LSC maxM - XLP (MAX/XLP) Controls 1024 channels or 20 fixtures, has 9 pages of 66 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Rental cos, schools, exhibitions, medium theatres. Description: Fader based with quick access playback features and dedicated ML controller. Control Interface: PaTpad touch screen with virtual wheels and buttons. Backup via: 3.5" disk. Other Features: electronic labelling, groups, palettes, presets, filters, etc.. Dimensions: 1014 x 165 x 515 \$8,635

LSC maxM - XXLP (MAX/XXLP) Controls 1024 channels or 20 fixtures, has 9 pages of 90 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Rental cos, schools, exhibitions, medium theatres. Description: Fader based with quick access playback features and dedicated ML controller. Control Interface: PaTpad touch screen with virtual wheels and buttons. Backup via: 3.5" disk. Other Features: electronic labelling, groups, palettes, presets, filters, etc.. Dimensions: 1230 x 165 x 515 \$9,735

MA Lighting grand MA Controls 2048 channels standard (up to 4096 optional), has 64 pages of 20 Faders, 100 Executor buttons Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for Large shows/concerts/theatre etc. Description: 3 touch screens, Fully assignable executors. Control Interface: 3 Touch screens, 4 encoders, level wheel and Trackball. Backup via: 3.5" disk, internal HDD or ethernet. Other Features: 15mUPS, Dual processor, DMX In/Thru/Merge, Remote In, R/case, Cover, disk lights. Dimensions: 1200x150x670 \$69,999

MA Lighting grand MA Light Controls 2048 channels standard (up to 4096 optional), has 64 pages of 10 Faders, 50 Executor buttons Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for Large shows/concerts/theatre etc. Description: 1 touch screen, Fully assignable executors. Control Interface: 1 Touch screen, 4 encoders, level wheel and Trackball. Backup via: 3.5" disk, internal HDD or ethernet. Other Features: 15mUPS, Dual processor, DMX In/Thru/Merge, Remote In, R/case, Cover, Dsk light. Dimensions: 730x120x510 \$49,999

MA Lighting grand MA replay unit Controls 2048 channels standard (up to 4096 optional), has 64 pages of 5 Faders, 20 Playback buttons Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Back up or replay. Description: LED display, Fully assignable executors. Control Interface: LED, 2 rows, 16 char. Backup via: 3.5" disk, internal HDD or ethernet. Other Features: 15m UPS, Dual processor, DMX In/Thru/Merge, Remote In. Dimensions: 485x130x430 Rack mountable \$32,999

MA Lighting grand MA Ultra Light Controls 1024 channels, has 64 pages of 10 Faders, 50 Executor buttons Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 internal display and 1 VDU Outputs. Typical application: Ideal for medium shows/theatre/concerts etc. Description: 1 touch screen, Fully assignable executors. Control Interface: 1 Touch screen, 4 encoders and Trackball. Backup via: 3.5" disk, internal HDD or ethernet Other Features: DMX In/Thru/Merge, Remote In, R/case, Desk Cover, Desk light. Dimensions: 635x157x490 \$32,999

Martin Case 1 Pro Controls 1024 channels, has 1120 cues pages of 10 faders Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: touring and productions. Description: 10 faders, fixture/cue/preset buttons. Control Interface: Trackball, fader interface. Backup via: 3.5" disk drive. Other Features: Effects generator, Full col libraries, SMPTE In/out Midi. Dimensions: 676x595x220 \$14,999

Martin Case 2 Pro Controls 2048 channels, has 1120 cues pages of 42 faders Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: touring and productions. Description:

10 faders, fixture/cue/preset buttons. Control Interface: Trackball, fader interface. Backup via: 3.5" disk drive. Other Features: Effects generator, Full col libraries, SMPTE In/out Midi. Dimensions: 1160x595x220 \$46,999

Martin Matrix Controller Controls 2048 channels, has pages of Scene masters (does not stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Programming Matrix Effects. Description: PC Based software. Control Interface: Slave control from Any DMX Controller. Backup via: 3.5" disk or internal HDD. Dimensions: 19" Rack mountable Casing *P.O.A*

Martin MAXXYZ Controls 32768 channels, has 1280 playbacks pages of 10 faders + 10 buttons Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for Large shows/rock concerts etc. Description: 2 Touch screens, Motorised faders. Control Interface: Trackball, motorised faders and LCD buttons. Backup via: 3.5" disk, CDRW, HDD or ethernet. Other Features: 8 Opt.Iso DMX outputs, 2 ethernet, DVD CDRW, Built in Comms Unit. Dimensions: 1034x613x287 *P.O.A*

ShowCAD Artist Controls 4096 channels (unlimited moving lights), has Unlimited pages of 99 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 4 VDU Outputs. Typical application: Nightclub, DJ, ThemePark, etc. Description: Computer keyboard + mouse). Control Interface: Computer screen interface (Windows). Backup via: Computer hard disc, floppy, CD, DVD, etc. Other Features: Runs on Windows 98 or later, full M/media control. Dimensions: N/A *P.O.A*

ShowCAD ShowCAD Controls 1024 channels (unlimited fixtures), has Unlimited pages of 48 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Nightclub, DJ, ThemePark, etc. Description: Computer keyboard + mouse). Control Interface: Computer screen interface. Backup via: Computer hard disc, floppy, CD, DVD, etc. Other Features: Runs on standard PC hardware, full multimedia control. Dimensions: N/A *P.O.A*

Strand Lighting Strand 300 Series (300 600Ch) Controls 600 Channels plus 400 attributes, has 5 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 standard and 2 optional VDU Outputs. Typical application: Professional Large Venue theatrical desk and moving light control. Description: 1 x 24 submaster module, 1 x master module. Control Interface: Trackball, rotary control and option keys. Backup via: Internal Memory, 3.5" disk or ethernet. Other Features: Full memory desk, upgradable to 600 Ch, moving light ready. Dimensions: 800x200x600 \$31,000

Strand Lighting Strand 500 Series (530i) Controls 800 Channels plus 500 attributes, has 6 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 standard and 4 optional VDU Outputs. Typical application: Professional Large Venue theatrical desk and moving light control. Description: 24 submasters; command, function & effects keypads; playbacks, go button. Control Interface: Trackball, rotary control and option keys. Backup via: Internal Memory, 3.5" disk or ethernet. Other Features: user programmable keys; fixture library; full tracking to 2nd console. Dimensions: 1265x150x680 *P.O.A*

Strand Lighting Strand 500 Series (550i) Controls 2000 Channels plus 2000 attributes, has 6 pages of 48 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 standard and 4 optional VDU Outputs. Typical application: Professional Large Venue theatrical desk and moving light control. Description: 24 submasters; command, function & effects keypads; playbacks, go button. Control Interface: Trackball, rotary control and option keys. Backup via: Internal Memory, 3.5" disk or ethernet. Other Features: Can control up to 6000 intensity ch & 2000 attributes. Dimensions: 1535x160x680 *P.O.A*

Theatreight Cuemaster120 Plus (TLCUE120+) Controls 1000 channels, has 10 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for Large shows/rock concerts etc. Description: Faders, flash buttons, Keypad softpatch to 1000 chns. Control Interface: No. Backup via: Memory Card (2). Other Features: The Plus side can softpatch to 1000chs for 2 DMX outputs. Dimensions: 1440mmx 490mmx115mm \$6,595

Theatreight Cuemaster 48 Plus (TLCUE48+) Controls 1000 Channels, has 10 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 2 VDU Outputs. Typical application: Ideal for Large shows/rock concerts etc. Description: Faders, flash buttons, Keypad softpatch to 1000 chns. Control Interface: No. Backup via: Memory Card (2). Other Features: The Plus side can softpatch to 1000chs for 2 DMX outputs. Dimensions: 960mmx 490mmx115mm \$4,995

Theatreight DMX-LINK Backup (TLLINK1000) Controls 1000 Channels, has 10 pages of 100 Scene masters (which can stack cues) and 1 VDU Output. Typical application: Convention halls Backup for larger DMX desks. Description: Faders, flash buttons, Keypad softpatch to 1000 chns. Control Interface: No. Backup via: Memory card (1). Other Features: Fully independent backup console. Dimensions: 460mmx490mmx115mm \$3,090

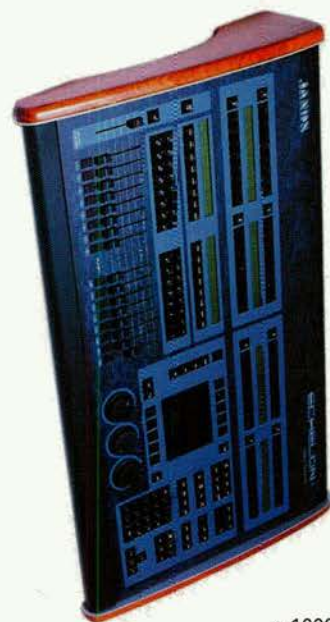
Zero 88 Bull Frog (48/96 + 24 movers) Controls 1024 channels, has 9 pages of 24 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for Large shows/rock concerts Night clubs. Description: 2x24sliders 12 subs 999stack memory master Go button chase modifiers. Control Interface: 3 Jog dials, Goup select, colour, beam buttons. Backup via: 3.5" disk. Other Features: Monitor out keyboard Pallets FX generator soft patch isolated DMX outlets. Dimensions: 1167x 115 x 568 \$13,795

Zero 88 Fat Frog (24/48 +12 movers) Controls 1024 channels, has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for Large shows/rock concerts Night clubs. Description: 2x24sliders 12 subs 999stack memory master Go button chase modifiers. Control Interface: 3 Jog dials, Goup select, colour, beam buttons. Backup via: 3.5" disk. Other Features: Monitor out keyboard Pallets FX generator soft patch isolated DMX outlets. Dimensions: 765 x 110 x 570 \$7,250

Zero 88 Leap Frog (24/48 + 24 movers) Controls 1024 channels, has 9 pages of 12 Scene masters (which can stack cues), unit has theatrical cue to cue playback and 1 VDU Output. Typical application: Ideal for Large shows/rock concerts Night clubs. Description: 2x24sliders 12 subs 999stack memory master Go button chase modifiers. Control Interface: 3 Jog dials, Goup select, colour, beam buttons. Backup via: 3.5" disk. Other Features: Monitor out keyboard Pallets FX generator soft patch isolated DMX outlets. Dimensions: 765 x 110 x 570 \$9,790



Martin MAXXYZ



g 1000

Zero 88 Bull Frog



STUDIO NEWS

Electric Mountain Studios

New Equipment - DynAudio BM 15's and sub

2 Acre Studio

New Equipment - Capuccino Machine, 2882 Metric Halo Audio Processing Unit, Mackie 32.8 Latest Project - Currently have Chris Walker in recording an album due to be released B4 Christmas. Last Broadcast are starting an album, but it will stretch out till probably March sometime.. The guys are in no hurry just doing bits and pieces as they please.. Along with a few bands coming in for demos.. Merry Christmas to everyone and a cool New Year, Cheers

Metropolis Audio Latest Project - Percussion Workshops with Sola Akingbola (Jamiroquai's Percussionist)

Toyland Recording Studio

New Equipment - Telefunken V72 mic pre amp, Drawmer DL241 Compressor.

Pandamonium Records

New Equipment - Mackie HR824 monitors

Restless Music New Equipment - Mackie Mixer and Rode Microphone.

Mixmasters Productions

New Equipment - Neve Prism Rack, U-48 Tube, SM-69, Avalon AD-2022, AD-2055

Blaam Studios New Equipment - Very happy with Lucid Gen96x 6x bnc house wordclock, Impressed with C-Port DSP2000 system for live rig. Very Stable. New Dual 800 G4 runs superb. Latest Project - Poised for "Hansard". Weekly political satire cartoon series. Music composition, design and VO tracking. Also Released personal EP "Sticky Nucleus" by Core Element earlier in

(continued over)

NSN

ARTIST	PRODUCER	ENGINEER	SESSION
A# Sharp +61 2 9153 9988 Jeff Cripps (jeff@asharp.com.au) www.asharp.com.au 24trk Analog, 32trk digital, 3 Live Rooms			
Wiley Park Public School	Jeff Cripps	Jeff Cripps	CD
Croft's Town Traffic	Jeff Cripps	Jeff Cripps	CD
Finn	Jeff Cripps	Jeff Cripps	CD
The Crop	Jeff Cripps	Jeff Cripps	Film Audio

Damien Gerard Sound Studios +61 2 9555 1710 Marshall Cullen (dgss@optusnet.com.au) www.damiengerard.com 2" 24 TRACK/PRO-TOOLS Big live room with isolation booths. Also pro-tools mixing/mastering room with vocal booth, ideal for voice over sessions.

Monstrous Blues	Band and Russ Pilling	Russ Pilling, Mast by William Bowden	Album
Angeline	Angeline	Russ Pilling	EP
Women of Troy	Women of Troy	Russ Pilling	EP
Nic Dalton and Robi St Clare	Nic Dalton	Russ Pilling	EP

Electric Mountain Studios +61 2 9280 3766 Greg Clarke (electric@tig.com.au) Music recording studio.

Post for Film and Television

Long Way To The Top Greg Clarke Greg Clarke transfers/Post of audio for DVD/Video/CD/TV

Hindsong Studio +61 2 6582 7070 David & Lyn Hinds (hindsong@bigpond.net.au) Private Project Studio

Balance	D. & L. Hinds	D. & L. Hinds	Track for Blue Dolphins CD
Port Central Shopping Centre	D. & L. Hinds	D. & L. Hinds	TVC
Page 5 Office National	D. & L. Hinds	D. & L. Hinds	TVC

Milkbar Recording Studios +61 2 9516 4559 David Sykes (info@milkbarstudios.tv) www.milkbarstudios.tv One stop shop for all your multiformat, surround sound, recording and mixing requirements

Porcelain	Robbie Porter	Dave Trump	Album
Paperadio	Dave Carr	Dave Carr	Album
D Trump	Sammy Kannis	Adam Ellis	Album
Under Pass	Sammy Kannis	Adam Ellis	Singles

Post for Film and Television

Under One Roof Daniel Denholme Daniel Denholme Film Soundtrack

R & R Recordings Studio +61 2 96724494 Robert Zimola (rrrecord@hawknnet.com.au) rrrecordings.com.au Analog & Digital Studios

Ilium	Lord Tim	Lord Tim	Album
Everlution	Band	Rob Zimola	Album
Kristy Lee	Rob Zimola		Album
Chris Walsh	Rob Zimola	Rob Zimola	Demos

Sound Level Pty Limited +61 2 9552 3200 John David (record@soundlevel.net) www.soundlevel.net 16 track Ensoniq

Paris Hard Disk Recording, 24 track DA88 recording			
Pocket Davey Crocket	Geoff	Jorden Brebach	Demo
Red Light Special	Band	Jorden Brebach	Demo
Frozen Cut Crab	Ken Stewart	Jorden Brebach	Mastering
Log	Andrew/band	Jorden Brebach	Album

Studios 301 +61 2 9698 5888 Steve De Fina (steved@301.com.au) www.studios301.com.au Recording and mixing studios for all genres of music

Melissa Tallon	Dave Nicholas	Dave Nicholas	Album/Tracking
The Man From Snowy River	Mark Opitz	Mark Opitz, Nick Cervonaro	Recording
Micheal Hope & Gregg Arthur	Colin Berwick	Nick Cervonaro	Album Tracking
Blaik	Dave Nicholas	Dave Nicholas	Tracking

The Vault +61 2 9555 8298 James Cadsky (cadsky@ozemail.com.au) SSL 4040 E/G 48 trk analogue protocols 5.1 mix plus. Awesome outboard beautiful waterfront location

The Brain	James Cadsky	James Cadsky	E.P. Rec/Mix
Kinetic	Spencer May	Spencer May	E.P. Rec/Mix
Bluebottle Kiss	Band	Dave Trump	E.P. Rec Mix
Lo-Tel	Matt Lovell	Matt Lovell	Album Mix

Trackdown Digital Pty Ltd +61 2 9550 6890 Mike Duffy (tdmail@trackdown.com.au) www.trackdown.com.au 1-128

Protocols Digital music and audio post facility with 4 edit suites and 2 recording areas.

The Night We Called It A Day Ocean Pictures/Night&Day Prod	Simon Leadley	Film Music Record & Editing For On Set Play Back	
Bambaloo	Yoram Gross - Emtv	Katrina Schiller	Tv Animated - Record/Mix Song Segments
Danny Deckchair	Deckchair Productions	Simon Leadley, Tim Ryan	Feature Film - Music Editing
Hero	Edko Productions	Simon Leadley, Tim Ryan	Feature Film - Music Editing

Post For Film And Television

Fairy Tale Police Dept	Yoram Gross Em-Tv	T.Lista, K.Schiller, S. Ryan, E. Bell	Tv Animated - Audio Post & Mix
Bambaloo	Yoram Gross Em-Tv	T.Lista, K.Schiller, S. Ryan, E. Bell	Tv/Childrens - Audio Post
Art Alive	Yoram Gross Em-Tv	Scott Ryan, Tim Ryan	Tv/Childrens - Audio Post And Mix
Tabaluga (Series 3)	Yoram Gross Em-Tv	T.Lista, K.Schiller, S. Ryan, E. Bell	Tv Animated - Dialog Record'

Velvet Sound +61 2 9267 2915 Anthony The (mail@velvetsound.com.au) www.velvetsound.com.au 48ch Amek, 2" 24 track & Pro Tools HD3 Studio.

Peter Fenton	Wayne Connolly	Wayne Connolly	Album
Hoolahan	Wayne Connolly	Wayne Connolly	Mixing
Starboard	Wayne Connolly	Wayne Connolly	Album
Gravity	Steve James	Adrian Grigorieff	EP Tracking

TRACKING GUIDE

Wirra Willa Studios +61 2 9605 1203 Will Or Connie Rout (tribal@z.p.com.au) www.tribalrecords.com.au 24trk Analog, 5 digital sys, DM80, Pulsar DSPs, Cubase, SX, Acid pro, Sampletank, Drumagog, Vsampler & Waves, Db, TC & Artares

Larry Gerace	Larry	Eddy Barila	Recording single
Sisters of Mary	Sister Auriela	Will Rout	Edit Compilation
James Smith	Will Rout	Will Rout	Mastering Albums
Suella	Suella	Eddy Barila	Mixing Album

2 Acre Studio +61 3 98468620 Paul Mitchell (info@2acrestudio.com.au) www.2acrestudio.com.au 2 Acre Studio, specializes in recording, programming, editing, arranging and mixing. Location recordings and Mastering is also offered..

Chris Walker	Paul/Cam/Chris	Paul Mitchell	Album (Big Fella Records Release)
Archibald & Son	Band	Paul Mitchell	EP
Duncan Chua	Duncan/Paul/Cam	Paul/Cam Mitchell	Album
Last Broadcast	Last Broadcast	Paul Mitchell	Album

Crystal Mastering +61 39326 2318 Joe Carra () Mastering suite

The Androids	T.Henwood	John Ruberto	Mastering
Day Of Contempt	D.W.Norton	John Ruberto	Mastering
IceCream Hands	Band	John Ruberto	Mastering
Band Camp	Band	Joe Carra	Mastering

Dex Mastering +61 3 9372 2266 Adam Dempsey & Ken Shulman (mastering@dexaudio.com.au) www.dexaudio.com.au

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Sammy Butcher	Stan Satour	Adam Dempsey	Album
Going Down Swinging	Steve Grimwade	Adam Dempsey	Compilation
Solaris	band	Ken Shulman	EP
3 Chinese Tenors	Hao Shou	Adam Dempsey	Live album

Indent Music +61 3 9381 2636 Dave (studio@indentmusic.com.au) www.indentmusic.com.au As for last month

Red Circle	Band	Band	Album
Humanizerr	Dave	Dave	CD EP
Sometime Boy	Band	Dave	Demo CD
Automatic Pilot	Band	Dave	Demo CD

Metropolis Audio +61 3 9696 2111 Nikki Jones (info@metropolisaudio.com.au) www.metropolisaudio.com.au Music

Recording Studio, music composition, Post Production & 5.1 Mixing Suites.

Delta	Eliot Kennedy	Robbie Adams	Album Record
Delta	John Fields	John Fields	Album Record
Lunchcutter	Hadyn Buxton		Record & Mix
Fifth Avenue	Forrester Saville		Record & Mix

Post for Film and Television

An Audience with John Farnham	Ross Fraser	Doug Brady	Record, Mix & Post Production
Wild Poppies	Nell Johnston	Matt Thomas	Record & Mix Film track

Pony Music +61 3 9702 3244 Geoff Mison (info@ponymusic.com.au) www.ponymusic.com.au as for last month

The Seventh Floor	Band / Geoff	Geoff Mison	EP Tracking and Mix
Drivaside	Band	Geoff Mison / Andre Gulbis	Tracking
The Monarchs	Band	Geoff Mison	Demo
Nurnberger	Band / Geoff	Geoff Mison	Demo

Studio 52 +61 3 3417 7707 Paul Higgins (info@studio52.com.au) www.studio52.com.au 3 high quality Studios with

producers/engineers to suit all needs, also manufacture CD's and provide top quality art work design & development

Plunja	Trevor Carter	Trevor Carter	Album
Dipsomaniacs	Trevor Carter		Mastering
The Lazily Spun	Trevor Carter		Mastering
Geoff Dawes	Trevor Carter	Trevor Carter	Album

Toyland Recording Studio +61 3 9482 2111 Adam Calaitzis (adamcal@ozemail.com.au) www.toyland.com.au Recording

Studio for Bands, Radio/TV Production. 32 in/out DAW. Telefunken/Neve/Lexicon/Logic Audio

Contrive	Band	Adam Calaitzis	Album Tracking
Global Rags	Chess Winters	Adam Calaitzis	Radio/TV spots
Radio 3AW	Adam Calaitzis	Adam Calaitzis	Radio Production
Hawthorn School Of Dance	Adam Calaitzis	Adam Calaitzis	Audio Editing

True Form Recording +61 3 9391 0907 Neil Gray (trueform87@hotmail.com) 24 Track Digital, Classic Analogue Console and OutBoard, Est. 15yrs.

Sex.C	Band and Neil Gray	Neil Gray	Demo
One-900	Band and Neil Gray	Neil Gray	Demo
Mutley Blues Band	Band and Dean Fisher	Live Album	Saphire
Neil Gray	Neil Gray	Album Pre-Prod	Super Dudes

Pandamonium Records +61 7 4051 3386 Todd Macalpine (studio@pandamonium.com.au) http://

www.pandamonium.com.au Digital facility specialising in indie rock acts.

Killer Beez	Bob Vidler/Todd Macalpine	Todd Macalpine	Album
The Unknown	Greg Anderson	Greg Anderson	Album
Brace	Todd Macalpine	Todd Macalpine	Album
Slaves Of Roswell	Todd Macalpine	Todd Macalpine	Album

NSW

VIC

QLD

STUDIO NEWS

2002, preparing for the next release and the birth of a second personal recording project. "Peptide"

Pocket Universe Latest Project - Current CD's: Margaret & Geoff Morgan (original folk), Dave Ralph (fiddle), Phil Beck (singer-guitarist), Barbara Lippie (poetry).

Survival Studio New Equipment - Valve Stereo Opto Compressor made in Aust. by Joe Malone (HOSEF products) Latest Project - US Producer Ron Goudie working with hard core act Hypercenter.

The Soniclub New Equipment - Sonic Solutions DVD Creator DVD AUTHroign Suite. Avid Xpress Video editing, HHH Circle 5 Surround monitoring system.

CONNECTIONS STUDIO AWARDS!

It's been ten years, so it's time to throw a few awards around.

• **Businessman of the decade:** Easy call. Tom Misner, of SAE and Studio's 301 fame, even though he cancelled all his advertising when we started our technical training venture.

• **Product of the decade:** DigiDesign ProTools. From nothing to market leaders in ten years. We just hope the Apple Mac can survive.

• **Best Studio Promotor:** Marshall Cullen, from Damien Gerard Sound Studios. A nice guy too - which always helps.

• **Legendary Engineer:** Ern Rose, owner of Metropolis.

• **Large studio mixing console of the decade:** Euphonix System 5, with more than 15 sold in the past two years.

• **Australian studio product of the decade:** Rode microphones. Like ProTools, from zero to market leadership in ten years. Well done, Peter Freedman!

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4 JBL P15 POWERED SPEAKERS INC. CASES / STANDS \$1,600 PAIR

2 JBL CONTROL SB-5 SUB-WOOFERS \$500

2 CLEARCOM SUB-STATIONS (near new) \$600

1 DENON DUAL CASSETTE PLAY / RECORD DECK (AS NEW) \$400

Lighting

8 MARTIN MAC 500 MOVING LIGHTS / CASES \$52,000

4 MARTIN MAC 600 MOVING LIGHTS / CASES \$22,000

4 SELECON 1K ZOOMSPOTS \$250 EA

2 STRAND PRELUDE 650W 16/30 ZOOMSPOTS \$300 EA

2 SELECON ZS650 16/30 ZOOMSPOTS \$300 EA

6 STRAND CODA 1 CYC LIGHTS \$250 EA

3 2K ARRI TV / FILM LIGHTS \$400 EA

24 PAR 64 AIRCRAFT LANDING LIGHTS (3 X SETS OF 8) \$2,000

Outdoor Lighting

5 SPACE CANNON 4K IREOS CMY SEARCHLIGHTS / CASES \$48,000 EA

4 SPACE CANNON 2K EASY SEARCHLIGHTS / CASES \$14,000 EA

2 GRIVEN 4K IMPERIAL SEARCHLIGHTS / CASES \$9,000 EA

3 GRIVEN 575 KALEIDO CMY WASHLIGHTS \$3,500 EA

Vision

2 SONY FX200 VIDEO PROJ. (3300ansi) CASES / RIG. (cost \$22,000) \$9,500 EA

2 MITSUBISHI FX200 VIDEO PROJECTORS / CASES \$4,000 EA

1 EXTRON 122 \$300

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Series of Lounge CD's	Nigel Pegrum	Nigel Pegrum	Holbourne International

Post for Film and Television

Challenge	Shanghai Oriental Television	Brian McCarty	TV Post
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Disk-Edits +61 8 8340 1377 Carlie (sales@disk-edits.com.au) www.disk-edits.com.au Audio Mastering & Post

E-Type Jazz - More Than You Asked For	E-Type Jazz	Neville Clark	Mastered & Manufactured Album
Cross Bred Mongrels - World Domination	Cross Bred Prod.	Neville Clark	Mastered & Manufactured Album
Sukatash - Blue Rooster	Sukatash	Neville Clark	Mastered & Manufactured Album
Scala - Here We Are Again	Robert Childs	Peter Kolomitsev	Mastered & Manufactured Album

Post For Film And Television

State Property	Oasis Dvd	Peter Kolomitsev	Dvd Audio Preparation
Australian Rules	Oasis Dvd	Peter Kolomitsev	Dvd Audio Preparation
Imposter	Oasis Dvd	Peter Kolomitsev	Dvd Audio Preparation
Comic Book Villains	Oasis Dvd	Peter Kolomitsev	Dvd Audio Preparation

Earsight 0407 970 425 Steve Fieldhouse (earsight@senet.com.au) ProTools TDM mixdown, editing, remixing and tracking facility for music and film sound projects.

Found Objects	Steve Fieldhouse/Chris Lambert	Steve Fieldhouse	CD Mixes
Sarah Portaro	Steve Fieldhouse/Sarah	Steve Fieldhouse	CD Tracking

Mixmasters Productions +61 8 8278 8506 Brett Taylor (sales@mixmasters.com.au) www.mixmasters.com.au

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E Type Jazz	Brett Taylor	Brett Taylor	Album
Liam Gurner	Mick Wordley	Brett Taylor	Ep
Planet Shakers	Henry Seeley	Jr Mcneely (Usa)	Album Mix
Diplomat	Jed Palmer	Jed Palmer	Album Mix

Blaam Studios +61 8 9371 5447 Ben Chase (info@blaam.com) www.blaam.com Digital suite with Yamaha02R mixer and heaps of sounds. Specializing in arranging and producing bands and artists. Remixing, vocal comping.

Paul black	Ben Chase	Ben Chase	EP
Vannessa Bantleman	Ben Chase	Ben Chase	LS Records/Larry Schulman
Spencer Tracy	Ben Glatzier	Ben Chase	album
Land Sharks	Ben Chase	Ben Chase	EP

Post for Film and Television

Gifted Thumbs (short film)	Ben Chase (composer)	Ben Chase	Additional Snd Design
Abandoned	Ben Chase (composer)	Ben Chase	short film by Julian Angus
Junction	Ben Chase (composer)	Ben Chase	Outback Series ABC
Magenta	Ben Chase (composer)	Ben Chase	short film by Justin Cheek

Bonsai Recording Studio +61 8 9246 4408 Tom Thorpe (bonsai@iinet.net.au) ProTools HD2 based studio. Other services include multimedia and DVD.

Jason Shill	Tom Thorpe		tracking
Kay-Redman	Tom Thorpe		TVC
Alan Archer	Tom Thorpe		Album
Scott Arnold-Eyers	Tom Thorpe		Mastering

Pocket Universe +61 8 9272 2118 Erik Kowarski (erik@perthwa.com) www.pocketuniverse.perthwa.com Friendly, unimposing recording env. with hi-end mics & preamps, specialising in acoustic, folk, classical, singer-songwriters, MIDI.

Cashman's Diary by Brendan Woods	Erik Kowarski	Erik Kowarski	CD- Celtic Folk
Thank you for the Days by Sean Roche	S.Roche/E.Kowarski	Erik Kowarski	CD- Celtic Folk
No Other Land On Earth by the Pioneers	Erik Kowarski	Erik Kowarski	CD- Australiana
Mood Didge Music by Ochre	Erik Kowarski	Erik Kowarski	CD- instrumental

Survival Studio +61 8 9402 5493 Adam Keane (survival@iinet.net.au) SURVIVALs sound engineer Adam Keane was nominated for BEST PRODUCER 2002 at this years WAMI Awards Night in WA. SURVIVAL features the Yamaha 02R.

El Horizonte	Adam Keane	Adam Keane	Album
Hypercenter	Ron Goudie (US Produce)	Adam Keane (Engineer)	Album
KIN	Adam Keane	Adam Keane	Album
RIFT	Adam Keane	Adam Keane	Album

The Soniclab +61 8 9375 3902 Mark Whitehouse (info@procopy.com.au) www.procopy.com.au Sonic Solutions Cd

Mastering Facility			
David Crozier	David Crozier	Mark Whitehouse	Album Mastering
BHP Billiton	Mal Krentzen	Mark Whitehouse	Voice over recording & Editing for CD Rom

Witzend Studio's +61 8 9336 1888 Alan Dawson (witzend@highway1.com.au) 24 track Digital + 16 Track Analog.

Automated Console			
Mark Binns	Mark Binns	Alan Dawson	Tape to CD restoration
Yvonne Kenny	Alan Dawson	Alan Dawson	Album
SMEC	Alan Dawson	Alan Dawson	Music for Video
Tessa Davis	Tessa Davies	Alan Dawson	Single

QLD

SA

WA

10 Years After The Joy of CX

Ten years of Connections, plus a couple of months of Channels before that. It seems hard to believe that I've been writing this column that amount of time.

Controversial, self opinionated, pedantic, arrogant, long winded, Julius has been called all that and more, but he still prints the stuff!

Right from the start my aim was to write something that people would read; nothing too serious, something that might brighten up a bad day. I guess the fact that I'm still doing it after ten years must mean that I've succeeded.

It's hard to encapsulate a hundred and twenty stories in a thousand words or so, but let's have a go as we take a wander down memory lane.

My very first story dealt with how to handle 'mixing groupies', the people who stand behind you at the desk, full of beer and advice, spouting pearls of audio wisdom ranging from:

"Can't hear the guitar, mate, (or drums or bass or singer or whatever)" through to "Tell 'em to play somethin' good!" and "Is that singer a poof or what?"

Everyone who's ever mixed a gig has been on the receiving end of such helpful advice as this.

The second story concerned security at gigs. What happens when you're at a gig, mixing away on your brand new Gigmaster Mark III, and a fight breaks out on the dance floor. Before you know it the effects rack has crashed to the floor, and 4 or 5 struggling music critics are slugging it out over your new console. Expert legal advice said that essentially you're stuffed. Just as well I asked an expert!

However the most controversy came from the next article where I said I didn't like Jesus Christ Superstar. The resulting furore from old farts who sing "Ho Zanna Hey Zanna, Zanna Zanna Ho" while polishing the Volvo was deafening. Got me crossed off Harry M's Christmas list, that's for sure.

To calm things down we had some Traveller's Tales, including 'Visit sunny Mexico and get arrested', 'Visit Nashville and get shafted by freight companies', 'Visit New York and get shafted by just about everybody (my favourite souvenir was a New York taxi moneybox. It had a great big hole to put money in, but no hole to get the money out!) and 'Visit Orlando and get run down by old farts in motor homes'.

There have also been stories about being shot at while working for a DJ, spewed at while working for bikies, threatened with being 'jobbed' if the band didn't play 'Release Me', and being forced to watch beautiful women strip naked and jump in and out of a swimming pool all night. See, it's not all fun!

Other bits just snuck in of their own accord while I wrote:

"...To digress for a moment, they're advertising a new kind of pillow that makes you sleep better and leap out of bed happy and smiling in the morning, and I'm sure the woman on the screen just said "I used to wake up every morning feeling grumpy but now I just let him sleep!"

And another "As I tap this out on my lap with one eye on the keyboard and the other on the TV, a commercial has just come on for Woman's Daze magazine, with the headline on the cover: "Princess Di

falls for rich Count" or some such drivel. Instantly I'm reminded of the classic story of the Australian farmer who sends his son off to a very upper class private school in England so he can mingle with the sons of aristocrats and get the benefits of a good education. So, when the kid has been there for a while, he sends his parents a photo of himself dressed up in the bizarre school uniform that is peculiar to these places, and he writes on the back: "Dear Mum and Dad. Here I am at school. Don't I look like a real Count. Love Cedric"

The farmer takes one look at it, sighs, and hands it to his wife. "I dunno, dear," he says, "All that money we're spending on his education and he still can't spell!"

The Bo Diddley story has been reprinted all round the world, as has My Generation Gap, T-shirt Time, and I've lost count of the people who have taken them off the website and reprinted them on their own page!

In 1993 I bemoaned the state of radio - too much classic hits, not enough new stuff. And the scorecard ten years later? Same old load of codswallop. Spare me.

Not everything worked, though. I hoped to have a day promoting the awareness of sexually transmitted diseases in the music industry called Red Nob Day, but sadly no-one was interested.

The story that still generates the most amounts of emails was The Hunchback of Festival Hall, about my good friend LL smuggling a reel-to-reel tape recorder into the Beach Boys concert because my cassette recorder was too lo-fi.

"You'll never get that past the guys on the door," I said.

"Sure I will, no problems," he replied. He put the microphone around his neck like me, strapped the machine on his back, wrapped some sweaters around it, then put his jacket on over the top. He lurched through the entrance of Festival Hall, smiling and dribbling at the bouncers, looking like Quasimodo in a Harris Tweed sports jacket.

"Is he alright?" one of the attendants asked me. "Does he need a wheelchair?"

I took him aside. "No, don't worry, he'll be OK once he hears the music," I said. "He's really quite normal, you know - apart from being a hunchback!"

And there are outtakes, snippets that didn't make it into stories.

'...Actress Sophie Lee once hosted a show on Channel 10 called Sex . A young couple was being interviewed. The girl said that she and her boyfriend had been hiding the sausage (I'm paraphrasing here) on a fairly regular basis, but it was such good fun that after 12 months she decided that she would cut off supply until she was married. And, she added, her boyfriend agreed with her, since they were still together two years later.

Cut to the boyfriend. What did he really think about it, enquired the interviewer.

"Well," said the boyfriend, completely deadpan, "It does get a bit hard sometimes!"

I bet it does!

See you next year for the Joy of CX, CX in the City, Everything you wanted to know about CX but were afraid to ask, and lots more. Check out www.dunkworld.com for more holiday reading. If you have a favourite story, email me dunk@dunkworld.com



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10 years!

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2003 schedule

CX MAGAZINE will be published every
2nd month, starting in March 2003.

MARCH - APRIL (Deadline 01 February)

MAY - JUNE (Deadline 01 April)

JULY - AUGUST (Deadline 01 June)

SEPTEMBER - OCTOBER (Deadline 01 August)

NOVEMBER - DECEMBER (Deadline 01 Oct)

JANUARY - FEBRUARY (Deadline 01 December)

CLASSIFIEDS, EMPLOYMENT, FOR SALE DISPLAY BOX ADVERTISEMENTS

Book by 10th month prior. Discounts: if booked for 3
issues, -15%. 6 issues: -25%.

Price system:

60mm wide: \$28 per 10mm mono, \$36 colour;
90mm wide \$42 per 10mm mono, \$54 colour;
180mm wide \$84 per 10mm mono, \$108 colour)

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60mm wide x 60mm tall	\$168 mono	\$216 colour
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Page wide x 50mm tall	\$420 mono	\$540 colour

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Deadlines

General deadline: 1st of the month prior. Classified advertising deadline: 15th of the month prior.
Features (Market Report) deadlines: 1st of the month prior. We go to print the last week of the month,
and the magazine appears in the first ten days of the month. See www.conpub.com.au for updates.

Subscription Rates, Bulk Deals

AUST: Our new subscription rates for 2003 cover our replacement magazine, CX.
6 ccpies (1 year) A\$31. 2 years A\$59. New Zealand (1 year) A\$43, Asia A\$48, Europe/USA A\$66.
RESELLERS/Bulk copies delivered to one address in Australia: half cover price, billed quarterly.

CX MAGAZINE (replacement) DISPLAY Advertising rate guide

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	Casual	3x	6x	Size to make artwork, notes
Full page colour	2524	2273	2064	A4, 297 x 210mm. Allow 3mm bleed. Keep text at least 10mm away from page edges so it doesn't get chopped!
* Inside front, back, page 3, 5, 6 & 11 extra				
Jurior page	1622	1497	1373	130mm wide x 180mm tall.
Half page colour	1342	1237	1130	Horizontal: 180mm wide x 130mm tall. Vertical: 90mm wide x 270mm tall.
Third page colour	1134	1063	991	Horizontal: 180mm wide x 90mm tall. Vertical: 60mm wide x 270mm tall.
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