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# Connections

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## VIDEO PROJECTORS: BUYER'S GUIDE



- \* DR G'S GRAB BAG: GIZMO ATTACK
- \* MOVING LIGHTS: BUYER'S GUIDE
- \* 3 DIMMER RACKS COMPARED
- \* MERLIN REVIEWED
- \* NEW PRODUCTS GALORE

## BIG AV SECTION DIGITAL DIRECTIONS: THE KAYYE VIEW



ISSN 1323-5595



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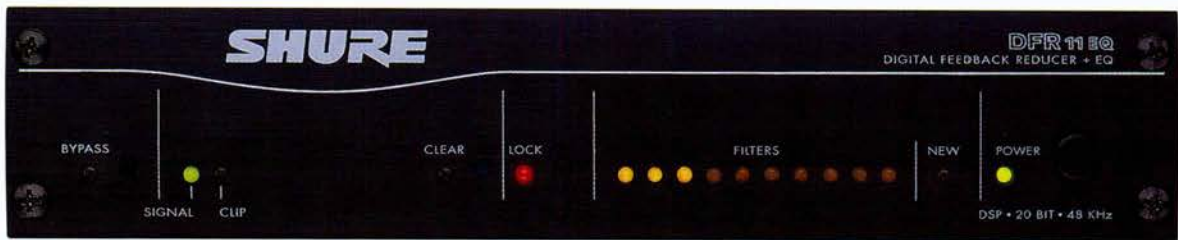
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## STUDIO SHOCK SAE TOM TAKES OVER 301



## ALL ABOUT WIRELESS MICS

- \* PULL OUT FREQUENCY CHART \* JOHN'S TIPS AND TECHNIQUES \* BUYER'S GUIDE



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**It reduces feedback.**

**It tunes the room better than ever before.**

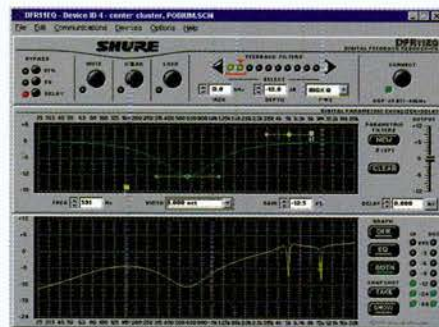
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Connecting the DFR11EQ to a PC enables you to choose between two powerful equalizer types: the 30-band 1/3 octave graphic equalizer or Shure's innovative, 10-band fully-parametric equalizer. Both EQs feature high- and low-pass filters.

The software interface features a frequency response viewer which displays the interaction between the feedback filters and the EQ filters—a key setup tool.



Two EQ options are available:  
30-band graphic EQ or 10-Band  
parametric EQ (shown).

**DFR11EQ VERSION 4**

All settings can be saved as scenes for quick recall and can be printed for easy documentation. And once your settings are complete, you can simply disconnect the computer and the EQ curves become completely tamper-proof. With Shurelink, as many as 16 DFR11EQ equalizers can be controlled by a single PC.

The DFR11EQ even offers up to 100 milliseconds of delay in 20 microsecond increments for time alignment or remote loudspeaker delay.

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For more information on the DFR11EQ, call Jands Electronics on (02) 9582 0909.

**SHURE®**

Distributed in Australia by:  
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40 Kent Road Mascot NSW 2020 Fax: (02) 9582 0999

# CONTENTS

March 1999, Issue 63

The Entertainment & Presentation Technology monthly



**Video Projectors**  
**BUYERS GUIDE: 57**  
**The FUTURE of Video Projection: 42**



**Wireless Microphones**  
**BUYERS GUIDE: 43**  
**John's tips and techniques: 42**  
**Pull out frequency chart: 47**



**Merlin: is it magic? Sid Kidman examines this 'one box' signal processor: 26**

## COMING IN CONNECTIONS:

**APRIL:** Buyer's Guides: Signal Processors, Film Studio & TV Lighting. **Deadline** 15th March. **Onsale** 7th April

**MAY:** Buyer's Guides: Effectors, Reverbs, Delays. Effects Lighting. **Deadline** 15th April. **Onsale** May 5th.

**JUNE:** Buyer's Guides: Live Mixing Consoles. Lighting Profiles and PC spots. **Deadline** 15th May. **Onsale** June 9th.

Call +61 2 9876-3530 for listings and info. **Deadline for Buyer's Guide is EARLIER!**

## inside

**Industry News:** What's new and happening 5

**Letters to the editor:** Flack and the rest 8

**Pro Audio News:** with lots of new products 13

**NAMM:** Fry questions if LA is still an attraction 16

**Tom Misner** takes over Studios 301 18

**REVIEW: Merlin**, a one box system processing solution. 26

**REVIEW: dB 481-2** large capsule cardoid condenser microphone 30

**Peavey chase the concert market:** new PA arrives 32

**BASF Tracking Guide** 34

**How to do it:** Fry on Live Sound: 36

**How to do it:** Misner on Studio Sound: 38

**Wireless:** John Matheson's tips and techniques 42

**Wireless Buyer's Guide** 43

**Frequency chart:** The Shure pull-out guide 47

**AV & PRESENTATION PAGES** 51

**Future of projection** Gary Kaye reports 42

**Dr G's Grab Bag:** The ultimate Gizmo wrap 56

**Buyers Guide:** Video Projectors 57

**AV manufacturers don't call on us!** Audio Visual Dynamics MD Peter Worth profiled. 63

**LIVE PAGES** 64

**Tamworth Regional Entertainment Centre** New home for Awards Night 64

**Punters Perspective:** Roman follies? 65

**Clarity in the Domain:** CODA Audio take on a difficult venue 66

**Much Ado About:** audio in the elements 68

**Dates of Disaster:** the drug crew strike back 69

**Rock Pig:** more mindless attacks on music 70

**LIGHTING PAGES** 75

**Budget 12 Channel Dimmer Racks** We do the comparing 75

**Saltimbanco:** Cirque Du Soleil's massive village on the move 80

**Possession** Meryl Tankard's Sydney Festival hit 84

**Buyers Guide: Moving Lights!** the BIG ONE 88

**The PA Page:** Michael Orland 94



**Moving Lights: THE BUYER'S GUIDE: 88**



**Concert PA push: can Peavey do it? 32**



**Tested. Andy Ciddor gets down with three budget dimmer racks: 75**

**COVER: New SSL console is a centre piece of the NEW Studios 301. See page 18**



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# Connections

THE PRESENTATION & ENTERTAINMENT TECHNOLOGY MAGAZINE

## SAE Tom grabs 301

*Mirage Studio complex to incorporate Studios 301*

**SYDNEY:** If Studios 301 is one of the Australian recording industries institutions of the 20th century, then Tom Misner is set to be an institution in the 21st.

The sole owner of the SAE empire, Misner has built a \$250 million business against sometimes bitter and often irrational opposition.

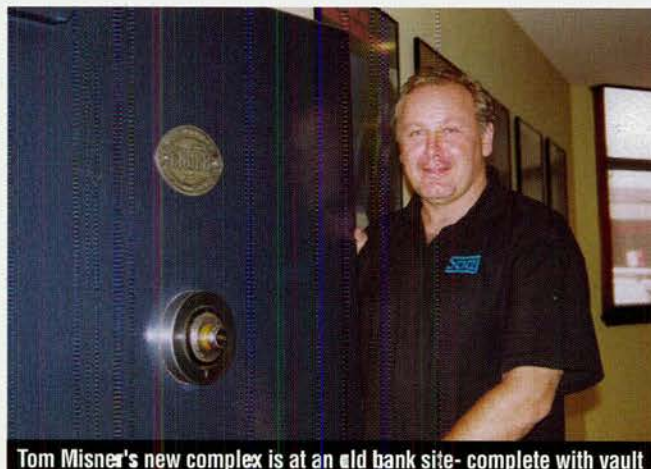
Then he bought Studios 301 in February - lock, stock and strata title. The recording industry were aghast. Especially when Tom announced he would move 301 into the forthcoming Mirage complex in Alexandria - and rename it Studios 301.

"He hasn't got credibility"

sniffed one industry person. "Who'd want to record with Tom?" said another. Or how about this: "If Tom was on fire, I wouldn't piss on him!" Cruel.

The vilification of Tom Misner has mystified Connections. Five years ago, SAE sought accreditation for its chain of technology colleges spread across Australia. A campaign against accreditation materialised, headed by none other than Studios 301 CEO, Jim Taig.

As Misner tells it, an 80 page manifesto was sent to every arm of Government to try to defeat SAE's claim. Connections could not verify any of the issues or claims against SAE then or now.



Tom Misner's new complex is at an old bank site- complete with vault

Now the worm has turned, and Misner has plans.

In a wide ranging interview, Misner told Connections how he would run Studios 301, and his reasoning. 301 CEO Jim Taig remains on board as a consultant,

overseeing the transition to Alexandria.

Fuelled by rivers of cash from 30 SEA colleges worldwide, Misner is on the brink of realising some huge dreams.

• Turn to Pro Audio News, 16

## APOGEE TO LIFT PRESENCE

Petaluma, CA: Apogee Sound Inc, the manufacturer of high quality loudspeaker systems and amplifiers, has appointed new distribution for Australia. Despite record sales in 55 countries last year -



giving arch rival Meyer Sound a solid run for its money, business in Australia has never been as good as Apogee would like.

Last October Connections reported that the Apogee PR machine had gone badly out of control. Apogee claimed they had been called in to provide audio for the Commonwealth Games in Malaysia - because of some alleged deficiency in the EV house system.

The facts were that a system featuring Apogee products was hired in for the opening and

closing concerts. Threats of legal action were made by the Sydney based installation company TCP, who faxed a stiff rebuttal to the world trade press.

More embarrassment followed when similar claims were made about Turandot in China. Meyer Sound contacted the trade press about the Apogee PR.

But things quickly changed at Apogee, with former VP Jim Sides leaving the firm.

Now Apogee have appointed Peter and Dragica Trojkovic's CMI Professional Products Group as Australian Distributors. CMI and Apogee have made a major commitment to the local market. Peter Trojkovic previously owned Troy Balance corporation • CMI +61 3 9315-2244

## Equipment imports up 11%

*industry study flags state of Australian MI industry*

**Melbourne:** A new market report on the Australian music products and pro audio market contains some surprises, says the Australian Music Association (AMA).

The comprehensive report studies import data provided by the Australian Bureau of Statistics for the years 1996, 1997 and 1998. The data is regarded as reliable by the AMA, and by industry sources we contacted.

Gross imports rose from A\$137m in 1996 to A\$160m in 1998. This equates to a retail market worth about 2.5 times these figures, before locally made equipment and installation inputs are added on.

The report lays to rest the perception that the musical

equipment market is in decline.

Imports of mainstay instruments such as brass, woodwind and acoustic keyboards have declined, whereas pro audio products provided the best growth.

Great news for consumers: the unit value of some products has actually declined. Mixers and multitrack products, for example, declined in average retail value from A\$1,372 in 1996 to A\$807 in 1998.

AMA supplied the report, a 36 page booklet, to their members at presstime. They are also offering a subscription for quarterly report updates.

• AMA, contact Rob Walker, +61 3 9867-4222 or visit their website at: [www.australianmusic.asn.au](http://www.australianmusic.asn.au)

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**Editorial Alliance:** Total Production Magazine (UK)

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**Reprographics:** Omicron, Sydney. (7th year)

**Platform:** Our Mac's now have an NT 4.0 backbone. End in sight?

**Newsagents Distribution:** NDD, Sydney. (7th year)

### DEADLINES:

Monthly except January, deadline 15th of the month prior.

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**ETHICS:** We operate under the journalist's code of ethics, as detailed by the Australian Media Entertainment and Arts Alliance. We also agree with the principles of media honesty expressed in Brill's Content magazine. Respect for truth and the public's right to information are over-riding principles for all journalists.

*In pursuance of this principle we have always committed ourselves to these ethical and professional standards:*

1. We shall report and interpret the news with scrupulous honesty by striving to disclose all essential facts and by not suppressing relevant, available facts or by distorting by wrong or improper emphasis;
2. We shall not place unnecessary emphasis on gender, race, sexual preference, religious belief, marital status or physical or mental disability;
3. In all circumstances we shall respect all confidences received in the course of their calling;
4. We shall not allow personal interests to influence us in our professional duties;
5. We shall not allow our professional duties to be influenced by any consideration, gift or advantage offered and, where appropriate, shall disclose any such offer;
6. We shall not allow advertising or commercial considerations to influence us in our professional duties;
7. We shall use fair and honest means to obtain news and documents;
8. We shall identify ourselves before obtaining any interview for publication;
9. We shall respect private grief and personal privacy and shall resist the compulsion to intrude;
10. We shall do our utmost to correct any published information found to be harmfully inaccurate.



Balls were blasted, says the PR, and who are we to argue? 12 industry types attempted the TAG Golf Classic, a new event in Sydney during February.

The trophy winning team comprised David Claringbold (Sydney Opera House), Barry Fernandes (Aust Film, TV & Radio School), Danny Scarpolino (Total Sound & Vision) and Maxwell Twartz (TAG).

The second event is scheduled for November. Any interested parties should contact TAG on +61 2 9810-5300.

**Peter Grubb**, Director of System Sound and his partner **Robyn** have a new addition to their family. **Hannah** arrived safely on Australia Day and is a sister for Oliver.

**Nikki** and **Brett Bower** (ICIA) are now the proud parents of two baby girls. **Samantha Lea** and **Erin Michelle Bower** arrived early but healthy!

## MUSIC CONFERENCE RETURNS

**P**hil Tripp's National Entertainment Industry Conference, held every two years, is scheduled for Friday & Saturday, August 6-7 at the ABC Radio Centre in Sydney.

Sponsored for the fourth time by Apple Computer Australia, the event's theme this time around is "The Technology, Art & Business of Music" which will be enhanced by 12 stands in addition to the eight panels in the series of seminars over two days.

Over 35 speakers have been confirmed and include major record company MDs. They'll predict the future; Internet technologists and marketers will show the way to promotion and commerce of music, from online CD sales to digital downloads of songs or albums. Copyright experts and lawyers will talk of the new challenges both Internet and interactive multimedia pose to creators and rights holders;

A&R and business affairs managers will debate who actually signs the artist and how not to get lost in the maze. Finally, alternatives to the local and national touring circuit for bands will be discussed.

At least four major overseas speakers are being confirmed for keynote addresses, US based digital download company Liquid Audio has booked a major presence in the event while conference sponsor Apple will be showing a number of innovations for the online music community.

Tickets are \$250 for two days and include admission to all eight seminars, TechXpo displays and a 10 kilo showbag of publications or materials. The 500 capacity hall is expected to sell out so early booking is advised. Visit the website: www.immedia.com.au or email tripp@immedia.com.au for further information. **More info call: (02) 9557 7766.**

## Catalogues Flood In

• **Audio Telex Communications Pty Ltd** (not Audio Telex Pty Ltd as stated last month) have just released the 23rd volume of their catalogue, at 64 pages. It's one of the longest established catalogues we have seen. Contact them on +61 2 9647-1411.

• **Greater Union Entertainment Technology (GUET)** have also just released a catalogue, their first. The 132 page catalogue boasts a 'who's who' of equipment from the Sound, Vision and Lighting sectors. It carries over 700 images, and took five months to make. GUET have flagged a fairly radical approach with a retail catalogue, choosing to distribute direct to customers. The new distribution channel is run by Billy Mawer. Call them on +61 2 9420-4888.

• **Altronic Distributors** have also hit the market with a 200 page plus bible of everything in components, test equipment and low cost PA gear. It's today's equivalent of the once great Dick Smith catalogue. Call them on +61 8 9328-2199.

## Moved

**AXIS Audio Visual** have moved to: Unit 4, 178 Boronia Road Boronia VIC 3155. Ph +61 3 9761 2688, Fax +61 2 3 9761 1091.

**Studio Solutions** have also shifted, to 61-63 Victoria ave, Chatswood NSW 2057. Ph +61 2 9417-3200, Fax +61 2 9417-3714.

## Moved

**SAE College** in Adelaide is now at: Level 2, 282 Gouger street, Adelaide SA 5000.

Ph + 61 8 8410-6599,  
Fax +61 8 8410-6808.

**Theatrecrafts** in Perth are now at Unit A, 3 Martin Rd, Sorrento WA 6020.

Ph + 61 8 9246-3538,  
Fax + 61 8 9246-3537.

## New people

**CMI** continue an expansion roll with **Bill Kelly** joining to take over from Billy Mawer in NSW. Meanwhile, the CMI Professional Products Group has appointed **Bob Middleton** to represent their products, including Apogee, in NSW. • **CMI +61 3 9315-2244**

## New Chiayo Distributors

The newly formed **National Systems Corporation of Australia Pty Ltd (NSCA)** have been appointed the exclusive Australian and New Zealand distributors for the Chiayo range of Wireless Microphone Systems and Portable PA's.

The previous Victorian Manager for Audio Telex, Peter Holland, heads the company. NSCA are now looking for new dealers for the Chiayo range of products throughout all states and territories of Australia.

• **NSCA (03) 9434 1888**

## AUDIO TELEX CHOOSE MIPRO

In a surprising move, Audio Telex Communications Pty Ltd announced their appointment as exclusive distributors of **Mipro Electronics Corp**, manufacturers of wireless microphone (right) and portable wireless PA systems.

Mipro has an interesting pedigree in the wireless microphone field. The company's chairman also founded Chiayc Electronics, who were until last December, represented by Audio Telex.

"Mipro have released a whole new professional range of UHF wireless product, from low cost



single channel UHF to 30 channel half rack and 19" full rack systems as well as a new portable wireless PA which has so many features it will sweep all before it," Rod believes.

• **Contact Audio Telex Communications Pty Ltd, Ph +61 2 9869 8830**

## Distribution of Mackie & RCF speaker lines to remain autonomous

**S**peculation that Mackie and RCF would merge distribution in Australia has been rebuffed. **Dave Croxton**, CEO of Mackie distributor Australian Audio Supplies, made the following statement after returning from NAMM where Mackie launched its new speaker line. "Mackie is keen to see RCF's business continue to grow, in both the transducer market and finished speaker systems. Mackie will introduce its own range of speaker systems that will strengthen its position as a complete Pro Audio Manufacturer.

**Group Technologies** will continue to distribute RCF in Australia while **Australian Audio Supplies** will bring Mackie's new speaker line to the market.

• **RCF: contact Group Technologies Ph +61 3 9872 5000.**

• **Mackie: Australian Audio Supplies, Ph +61 2 4388 4666.**

## ULA & Technics

Universal Lighting & Audio announce distribution of Panasonic & Technics products including Technics turntables, mixers, headphones, Hi-Fi equipment, and Panasonic LCD & CRT projectors, televisions, home theatre systems, video and DVD players

According to **Justin Knox**, ULA can access the entertainment market - and can now distribute Technics SL1200 turntables, for example, nationally. • **ULA +61 7 5532-9922**



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## Dangerous attack

In the current political climate your attack on JJJ (Broadcaster assisted profitability, February) is unwise. JJJ-FM is the greatest single contributor, by a wide margin, to the current health of the Australian music industry. If it promotes some concerts and festivals - so what?

- Name withheld, St Kilda.

## Leave JJJ alone

The music scene is being strangled by commercial radio refusing to play local music. So Connections attacks it! Cancel my subscription. You're all obviously a bunch of light and easy hits of the 80's kind of people.

- **Georgie Psorakis, Cairns.**

## Strategic 'presents'

We choose whether to invite JJJ to 'present' our concerts, some artists are better 'presented' by one of the commercial networks.

- **Promoter (name withheld)**

## Cover returns!

So Connections finally returns to a decent cover design. Amazing what a price rise can do.

- **EricaZ (Email)**

## Johns are cool

Hey- the two John's (*Grimshaw and Matheson*) can REALLY write. Does this mean Connections is now paying its writers?

- **Autolocate (Email)**

*Always have, always have. -Ed*

## Love it, better than ever

I'm so proud of Connections. Your magazine has matured and prospered, and as an Australian production too. I particularly like the way the content, layout, and (gasp) *spelling* have gone in the past year. I think your 'handle' on the market is great too, I find the directions that you flag tend to represent what is really happening out here. Keep it up forever!

- **James Carter, Axcnt Productions, Ryde NSW.**

## Festive at Woodford

I recently went to the Woodford Folk Festival as Production Manager and FOH for John Williamson. It's a big festival. We worked at one venue and the inhouse crew were very professional. The rig was of a high quality, and this was the case at the other venues I got a chance to look at. To all the production staff at the Woodford Festival - many thanks for making our job easy and our show special.

- **Steve Newton, Sydney.**

## More NZ

We love Connections, but where is all the New Zealand content?

- **Jack Ellsmore, Auckland**

*We need WRITERS from NZ. Come forward one and all.....*

Letters, PO Box 439 EPPING NSW 2121 Australia, fax +61 2 9876-5715, mail@conpub.com.au

## Bad Connection?

We were disappointed with the article titled 'Building your very own DMX 512 Tester for under \$10' by Andy Ciddor (*December/January issue*). In the notes section Andy compares the Neutrik connector with the Alcatel connector. To clarify the statements made we respond as follows:

Amphenol, one of the largest connector companies in the world, have now purchased the Alcatel connector facility and are producing a world class connector that conforms with IEC 268-12 and AES 14-1992 standards. The reference to pricing is also misleading; the Amphenol AC5M has a RRP of \$7.04 ex-tax

In closing it was interesting to note a Neutrik connector was not even used.

- **Stephen Richards, Marketing Manager, Amphenol Australia Ltd, Moorabbin.**


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## MAJOR EVENTS

- MusikMesse, 3 - 7 March 1999. Frankfurt. www.messefrankfurt.com
- Dig Media World, 24-26 March. Sydney. Ph. +61 2 9360-6396 www.dmw.com.au
- NAB, 19 - 22 April, 1999, Vegas, USA. www.nab.com
- Music Convention, 29 April - 2 May. Gold Coast. www.australianmusic.asn.au
- PLASA Shanghai, 13 - 15 April 1999. Ph +44 171 370-8231. web: www.eco.co.uk
- NSCA, April 27 - May 1, 1999. Nashville. Ph +1 904 273-2760, web: www.nasca.org
- AES 106th, 8-11 MAY, Munich. Fax +1 212 682-0477. web: www.aes.org
- InfoComm, June 10-12, 1999. Orlando. Info fax +61 2 9531-6777, www.icia.org
- PALA, July 8-10, 1999. Suntec City, Singapore. Ph. +65 227-0688.
- SMPTE, July 13-16 th, 1999. Sydney. Ph. +61 2 9977-0888.
- National Entertainment Industry Conference, Sydney. Aug 6,7. +61 2 9557-7766
- PLASA, Sept 5-8, 1999. London, Earls Court. www.plasa.org.uk
- INFOCOMM ASIA, Sept 15-17, 1999. Singapore. Ph. +65 297-2822. www.icia.org
- AES 107th, Sept 24-27, 1999. New York. Fax +1 212 682-0477. web: www.aes.org
- LDI Nov 19 - 21st, 1999. Orlando. Ph +1 212 229-2965 web: www.etcync.net
- NAMM, 3 - 6 Feb 2000. LA. www.namm.com
- **ENTECH 2000, March 5th - 7th, 2000. Sydney Exhibition Complex at the Olympic site, Homebush. Fax + 61 2 9876-5715. web: www.conpub.com.au**
- MusikMesse, March 15- 19th 2000, Frankfurt. www.messefrankfurt.com
- SIB, Mar 26 - 29th, 2000. Rimini, Italy. Ph +39 541 711711. www.fierarimini.it
- NAB, April 8-13th, 2000, Vegas, USA. www.nab.com
- NSCA, April 27 - May 1, 2000. Las Vegas. Ph +1 904 273-2760 www.nasca.org

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## Sony SRP-V110 Audio Mixing Console



**MONO INPUTS:** There are a total of 10 mono input channels on the SRP-V110, with direct output and monitor switching on the channels 1-8. All mono channels feature pre-fader inserts, a low-cut filter and -3dB peak level indication. There is also a 3-band equalisation section that features shelved high, sweep peak mid-range and peak low end actions.

**STEREO INPUTS:** The Sony SRP-V110 features four balanced stereo inputs, supported by four unbalanced stereo sub-inputs which can be used as returns in mix-down situations.

**AUX BUS OUTPUT:** This is an 8-bus mixer, and to meet the increasing market demands, the compact SRP-V110 also features a total of 8 AUX sends.

**MONITORING:** Each bus output and 2TR input on the SRP-V110 features AFL [after-fader listen] monitor switching, while PFL [pre-fader listen] switching is provided for each of the 10 mono and four stereo inputs.

**READOUTS:** 10-segment LED meters can be switched on any assigned channel bus between peak-reading for recording and VU for PA applications.

**VERSATILITY:** While occupying only 9U of rack space, the SRP-V110 can combine a number of electronic keyboards, MIDI sound sources and solo or small ensemble vocal and instrument mics ... it can also accept MiniDisc, CD, DA<sup>2</sup>, or other line level source technologies. With these facilities it fits into broadcast, post-production and live-performance applications.

**HEADROOM:** We designed the SRP-V110 to maintain wide headroom at all stages of signal processing [23dB on input and 26dB at summing stage] to minimise distortion problems.

**SOUND QUALITY:** Simple circuit design, selected high quality electronic components and operationally sophisticated EQ design and attention to every detail mean exceptional sound quality in all applications.

**Reliability:** Rotary controls have metallic shafts and the sliders feature a damper action for a positive feel and high reliability.

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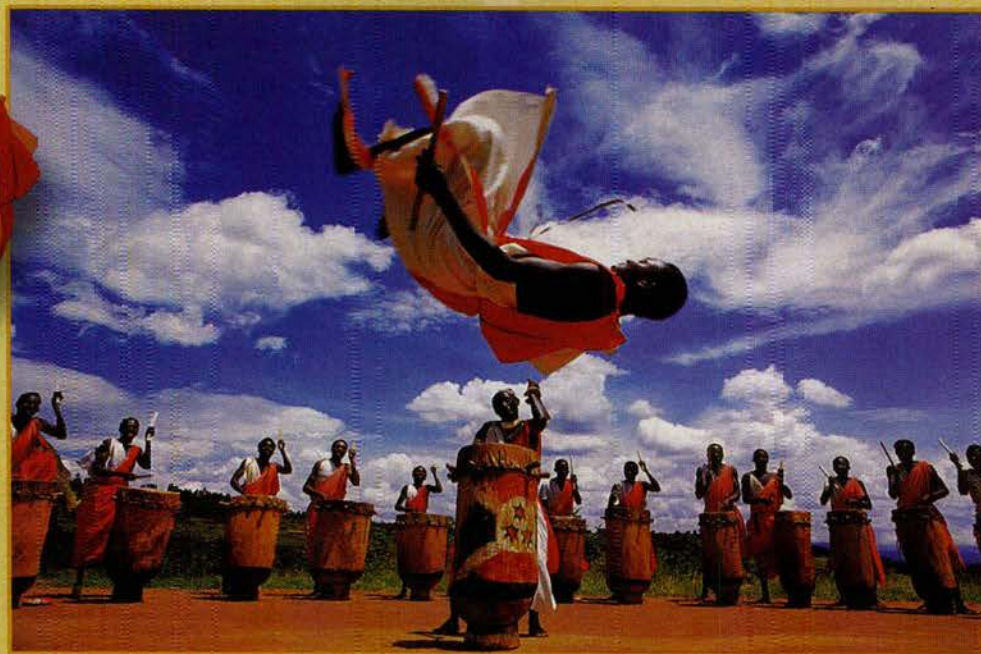
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Jeff Thomas ◊ FOH Engineer, The Dave Matthews Band

***"Self-Powered speakers mark a new beginning for both Meyer and the live sound industry."***

Mark Frink ◊ MS-4 Review ◊ Mix Magazine, August 1996

***"Only Meyer Sound's Self-Powered Series guarantees us a world-class sound system preferred by most artists and producers."***

Marcio, Nelson & Marcos Pilot ◊ Loudness Sonoriza, Brazil

***"Setting up 18 stages in one week... we never could have done it without the Self-Powered Series. Nothing is easier to use, easier to maintain, or sounds as great."***

Miguel Lourtie ◊ Systems Engineer - EXPO '98 ◊ Lisbon, Portugal

***"The sound was amazing, incredible... the music almost came at you in 3-D! ...Simply, I have never experienced speakers like these before."***

Mike Klasco ◊ UPA-iP Review ◊ DJ Times Magazine, May 1998

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# PRO AUDIO NEWS

MARCH 1999

## March is Wireless Mic Month

The world of the wireless microphone is in upheaval after the Australian Communications Authority allocated almost all the currently used VHF bandwidth to high definition digital television last year. This has produced a rush to UHF. Sennheiser are market leaders in UHF by sales revenue, as their systems

are used in most professional theatre productions and at a lot of broadcast sites. They say up to 64 channels of their UHF wireless can be used altogether at once at one location. "Our speciality is our broad spectrum experience", says Sennheiser distributor for Australia and New Zealand, Bob Sloss of Syntec International Pty Ltd.

Sennheiser's modular 1046 system is the most commonly used theatre system, while the new 3031/3032 receivers (below) are also finding favour in theatre.

This month Connections features our annual Wireless Microphone Buyer's Guide, along with John Matheson's Wireless Tips. We also introduce a neat pull out frequency chart, courtesy of Shure.



## NEW!

The **ARX 925 Sub** features two 15" long throw drivers loaded into a triple vented, bandpass enclosure. Power Handling is rated at 1000 watts. Factory fitted rigging points ensure easy rigging and flying. Use with the ARX LSP-1 ISC Processor. A\$3,643. • ARX +61 3 9555-7859



**Inter M** introduce an inexpensive Quad amplifier, the QD-4480 (below). It boasts 4 x 120 watts at 4 ohms, or can work as a 2 x 240 watt amp at 8 ohms. It's got 2-step low noise fan cooling, with airflow from front to

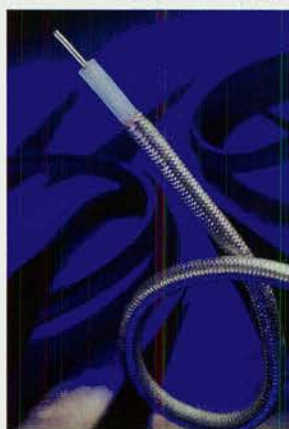
rear. This avoids blockage of air inlets hidden on the rear. Inputs are balanced 6.5mm jacks, with binding post outputs and bridge switch on each pair. A\$950. • Magna Systems +61 2 9417-1111



**Belden Australia** has added a quarter inch (6.2 mm nominal diameter) cable to its high performance Conformable Coax family.

This new cable (right), enhances a line that is designed as an alternative to semi-rigid coax. It allows the installer to handshape it into tight bends, coils and curves without using forming tools and equipment.

• Belden 1675A quarter inch Conformable Coax: call 1800 500 775 or visit [www.lbelden.com](http://www.lbelden.com)



## WebWorld With Greg Weaver

### When is MP4 not MP4

Last month Connections reported on a new music compression format 'MP4' set to make waves in the distribution of music via the Internet. Most readers would make the perfectly natural assumption that because a file format was called MP4, that it was the successor to the currently popular MP3 format, which is a file format defined by the Motion Pictures Expert Group.

<http://drogo.cse.stet.it/mpeg/>

The current MP3 format is actually MPEG-1 layer 3. Files carry the .MP3 extension and are data files, which are used by the player software. Because of this, these files can be played back on any supported platform. Currently there are MP3 decoders (players) for DOS, Windows 3.x/95/98/NT, Macintosh, Amiga, OS/2 and the various flavours of Unix.

MPEG-4 is currently under development, version 1 was ratified in October 1998, and version 2 should be approved this year. The alleged MP4 format has been touted by Global Music <http://www.globalmusic.com> and Australian company, Chaos Music Market <http://www.cmm.com.au>

Global Music are a licensee of the a2b music format, which was initially developed by AT&T. <http://www.a2bmusic.com>

By combining the proprietary a2b format with an executable file, the company came up with their own format they have dubbed MP4 which is not compatible with MPEG-4 AUDIO.

There are also key problems with the 'MP4' executable.

i) It is not an open standard, it is Windows only, other platforms are not supported, nor has future support been announced.

ii) Having an executable file is an open invitation to some virus writing propeller-head to create

(please turn the page)



**JBL** introduce new midrange speakers (*above*) which will make custom system designers happy. The 2012H and 2020H are 10 and 12 inch 'maximum output' cone drivers. • *Details: Jands +61 2 9582-0909.*

**RAMSA** debut new versions of their popular compact speaker systems. The WS-AT200 (*right*) is a high power speaker system with tough resin enclosure. It is loaded with a 12" low frequency driver, and a 90° x 40° high freq. horn. It'll do 300 watts program and is said to have an extremely flat response.

Its little mate, the WS-AT80, has an 8" low frequency driver, a 60° x 60° high frequency horn, and does 160 watts program. It'll mount on a stand if required, and can be operated either upright or on side, with same high frequency dispersion. It has an integral carry handle and flanged sides for stacking. Connections are via push terminals and in/out jacks.

*Prices are yet to be finalised.*  
• *From Ramsaudio, +61 2 9477-7377.*

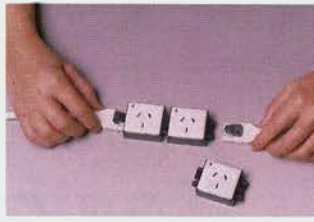
## WebWorld

*from previous page*

complete havoc. In fact, the first ever 'MP4' from Public Enemy contained a virus.

iii) Although Global Music boast a 'digital watermark' to prevent piracy, it is a very simple process to re-record an 'MP4' into MP3 or any other audio format for re-distribution.

There is much debate on the web over this 'new' format, on website such as <http://bboard.mp3.com/ubb/Forum4/HTML/000161.html> and <http://talk.netline.net.au:8081/~2/greg@weaver.net.au>



**Elsafe Modular Socket Outlet System** (*above*) is an Australian designed device which has great export promise. As the pic shows, it just clips together. The faces come in different colours too. It won a design award, and hopefully will make the designers rich and happy. • *Details from Elsafe Australia, +61 2 9975-7422.*



The computer-controlled DP11EQ (*below*) from **Shure** combines a parametric equalisation and delay, all within a half-rackspace chassis.

Operable at line level in balanced or unbalanced modes, the DP11EQ is capable of precisely controlling every aspect of a



signal's dynamic range. Its dynamic processing capabilities include automatic gain control functions, a gate, an expander, compressor, limiter and a no-over-shoot peak limiter.

Up to nine bands of parametric equalisation are provided, with up to 1.3 seconds of delay for speaker alignment or remote speaker arrays.

To monitor this control, the



Founders and ex-owners of DDA are behind **Audient**. Their first product is a single (ASP-131) and dual 31 band (ASP-231) graphic equaliser, (*above*) with some special features and spec's.

Features include dual operating modes - 'Normal' mode, best used for general EQ treatment and system voicing provides reciprocal constant Q responses with smooth combining characteristics at all gain settings. 'Narrow' mode provides a much sharper cut response which allows removal of feedback with minimal loss of programme balance. Audient graphics also feature a Tilt control that tilts the overall system response gently about 1kHz, either boosting HF and cutting LF or vice versa.

Neat idea: centre frequencies and operational controls are provided with back-lighting giving clear indication of system status. ASP-131 RRP A\$1,999, ASP-231 RRP A\$2,999.

• *Audient is now available through Corporate Audio Services (a division of Electric Factory), +61 3 9480 5988.*

unit is equipped with a transfer function display within its Windows-based control interface.

All active settings can be stored within memory and additional scenes can be stored on your PC for later recall. A\$2,350rrp. • *Jands Electronics, +61 2 9582 0909.*

## NEW!

German manufacturer, **Neutrik Cortex Instruments**, have launched the Minirator MR1 - a powerful, hand-held Analog Audio Generator. Signals can be generated over the entire audio band from 20Hz to 20kHz with levels ranging from -76dBu to +6dBu. A dedicated Polarity Test Signal is also provided, with White & Pink Noise signals. A\$280.00 + Sales Tax. • *Amber Technology +61 2 9975 1211.*



**Denon** were the first company to design and manufacture a purpose built mini disc player/recorder for the DJ market, the DNM2000R. Now Denon are again first with a dual mini disc player/recorder.

The DNM2300R (*below*) is designed along the same lines as the successful dual CD players, comprising a drive unit and remote control unit. The drive unit is rack mountable and 2RU while the remote is 3RU and has a well laid out control surface that is simple and easy to use. A\$4,299.

• *AWA Audio Products, +61 2 966903477*



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## On top of old Smokey

The 1999 NAMM show visited. Duncan Fry reports on the largest music/pro audio event in the USA, held in LA

**W**ell, it's January so it must be NAMM time - the National Association of Music Merchants' exhibition, held over 4 days at the LA Convention Center (their spelling not mine). Four days of peace, love and lots of prancing around in big hair, Lycra, high heels and a ton of make up... oh, and the girls look pretty good, too!

The show encompasses everything music - from accordions to ADATs, concert grands to concert systems, Dobros to DAWs. Trade only, too, although this show has a loose enough definition of 'trade' that luckily includes band members, their girlfriends, their friends, their kids, the guy who packs the bags at the supermarket and Uncle Tom Cobby and all. Pardon my cynicism, but anything to get the attendance numbers up, right?

The LA Convention Center is a big place, split up into three main halls. The first has with each and every kind of musical instrument (and drums as well!), all apparently being played simultaneously.

Underneath the first hall there is the identically sized Kentia Hall, which is chock full of wall to wall 10' by 10' stands populated by people convinced that they've just invented the Next Big Thing. And they're all playing them simultaneously too!

The Pro Audio area, where we were, (ARX were an exhibitor. -Ed) is in a totally different hall, a short bike ride of about half a kilometre away. So far away it's

On the 'old smokey' stand



almost like a different show. I left our stand to visit Mark Dryden from Penn Fabrication, in the first hall, and it took me almost an hour to get there and back, and that's after getting to the stand and finding he wasn't at the show! Imagine how long it would have taken if I'd stopped and had a chat.

This is one of the problems with big trade shows like NAMM and the Frankfurt Music Messe. They are often s-o-o big that as an exhibitor sometimes all you see are the displays around you in your immediate vicinity. When you get home people ask: "What was the show like?" and you say "Er, I dunno - all I saw were the people next to me!"

So this time I was determined to have a good look around, at least in the pro audio area.

And, as Samuel Goldwyn said 'It's deja vu all over again.'

Sure, there were more and more plastic speaker boxes, more digital mixers, every possible combination of tube/analog/digital voice processors/compressors/equalizers, but nothing that made me go "Shit that's great, why didn't I think of that," or

"Wow, how'd they do that," or, and this is the whole point of the exhibition, nothing that made me say "How much is that? I want one!" I was left wondering, has the show lost its relevance in Pro Audio? I mean, it comes just after the US AES show, and just before the Frankfurt show. Too many shows for too many prod-



Mini Leslie

ucts chasing too few buyers? Perhaps, although there's more to it than that.

There's just not the vibe in LA that there was at Anaheim. This is the second time that the show has been in downtown LA, and it's not a popular venue. Customers I spoke to pre show said they wouldn't be going, they didn't feel comfortable downtown. I



mean, it's safe enough (as safe as any other big city), but it's an absolute shit of a place to get to in the morning, and even worse to get away from at night.

Last year, when it rained on the first day of the show, it took us 2 hours of solid stop-start freeway driving to get in to the show (Incidentally, driving on those freeways - don't you just love the skidmarks that go UP the wall!).

Third day of the show this

(Please turn to page 35)



"Once a polly tie tode in a fresh univerbs where deep thundermold did huff a load down, most great joy loaders of true wisdom arrayed..."

>105d6  
bP++E\* thdN dI9I+dL MI

## Difficult to understand? Yes!

These words, inspired by the great Stanley Unwin\* (inventor of Unwinese), describe something simple in a complicated and unintelligible manner. Just like the majority of computer-based recording systems!

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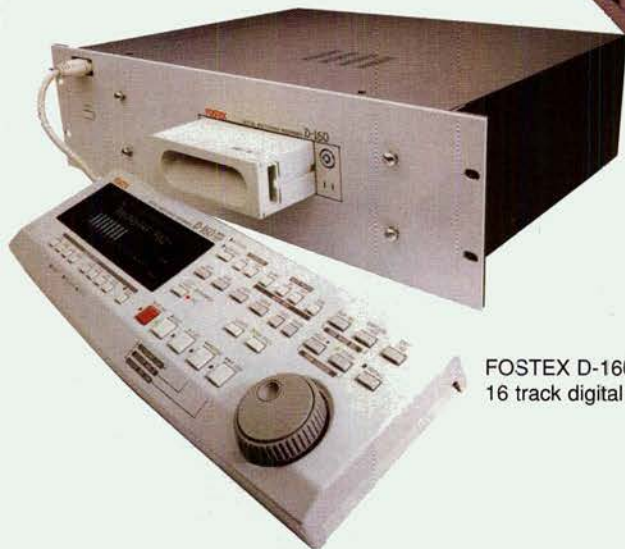
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\*Stanley Unwin is the self-styled Professor of Unwinese, a bizarre subversion of the English language intended to keep it alive and vibrant... Others refer to it as a linguistic lobotomy!

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# It's no mirage as 301 falls to SAE Tom

*New facility takes shape in renovated premises at Alexandria*

**I**f you were to position a new recording facility in Sydney you'd try to locate it within 10 minutes of the city centre. Tom Misner (*right*) has done this by purchasing old Bank premises in Alexandria, just south of the city and halfway to the airport.

The building at 2 Mitchell Rd is a solid brick two story bank complete with walk in vault. Next door at number 10 is an 8000m<sup>2</sup> former bank store, a brick warehouse building with an iron roof. It's an inspired choice, the neighbourhood is mainly light industrial, older style warehouses and some traditional old style housing. The district is about to be transformed when the new City to Airport rail loop opens up. It's the next property hotspot.

Misner has spent A\$10 million in the district in the past year. There's a factory across the street at number 39 which will be a studio maintenance business called Signal to Noise - with a residence on top.

"There isn't money in maintenance but it's a service

to me and others" says Tom. "In Buckland street I've bought four factories in one line - one of them for me to live in, my Sydney residence. I also bought a block of land to develop".

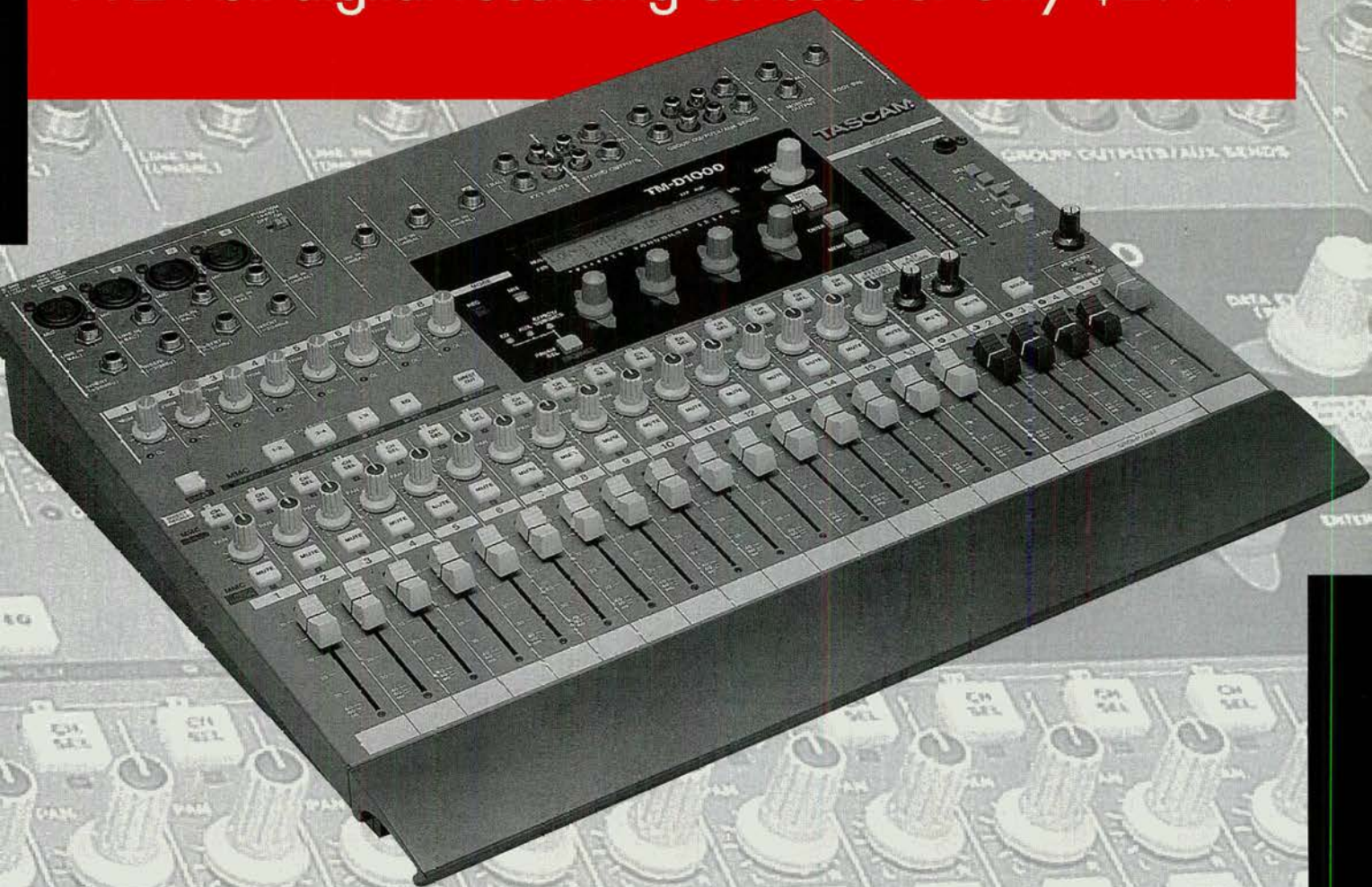
So why build a new studio in Sydney? To understand this, you need to understand the background of Tom Misner.

Misner is sole owner of SAE College, which now numbers 30 sites worldwide. He founded SAE 25 years ago and fought hard to get it established. SAE only really went cash flow positive five years ago, and since it has experienced dramatic expansion.



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# TASCAM

## TM-D1000

SAE is now affiliated with Walt Disney Entertainment in the USA, where it is about to open. A ten studio facility at West 40th street, near Times Square, opens this month. New York enrolments are running at 10 per day, without major newspaper ads. Nashville opens in September, in the old Arista building on music row, and couple of other US cities follow.

Then there are 2 new rooms in Glasgow, and after doubling the size of London last year, it will increase in size by another 50% again soon. It's becoming a monster. The London SAE turns over A\$22m, according to Misner. "Paris is bigger, Munich London and Paris are huge schools. In Munich we have almost 1000 students. In Switzerland there are more".

## HOW GOOD IS SAE?

Misner has faced every hurdle that anyone blazing a business empire can expect. He has suffered a campaign against him and SAE in Australia. SAE's growth has coincided with the decline of the traditional studio business, which didn't sit too well with some people who felt either envy or angst at Misner's success.

Connections has been contacted periodically by occasionally anonymous agitators who have claimed that SAE is either or all of:

- A ripoff ("they charge too much");
- Misleading prospective students (by claiming they will enjoy good employment prospects in the studio industry);
- Not providing quality education.

Each time this kind of rhetoric came our way we asked if the complainant was a student, or ex student of SAE. They never were. We asked if they were prepared to go public with their accusations. They wouldn't. We asked for proof of any of the complaints. None has ever been supplied, by anyone, anywhere, anytime.

The occasional ripple of dissent erupted in a torrent five years ago, when SAE was seeking accreditation.

"What happened was that I was going for accreditation and Jim Taig (CEO of Studios 301) turned up with an 80 page document showing why SAE shouldn't be accredited. His motivation was that some people had rung him up and told him the whole school was a ripoff. He never checked it out himself. He took it upon himself to write an 80 page document- but it didn't do any good anyway, I still got accreditation".

Misner says that if you do a degree via SAE over two years, it is actually cheaper than doing it over three or four years at a University. "HECS (the students contribution 'fee') is \$3,800 per year for a three or four year degree, to be paid back after you earn a certain amount of money after tax!"

So what do people pay to attend SAE?

"In Australia, students pay \$600 a month. The Swiss school charges A\$2,200 per month. The Australian course fees are A\$7000 a year, roughly. In the USA it's US\$12,000 for the same course".

"People find the way we run the place is a good model. If you want to work at SAE as a teacher, you've got to be working somewhere else as well. You need to work in live sound or a studio before you teach".

"The curriculum is well worked out. The lecturer gets good support - it's all been worked out over 20 years. On the SAE website are special access sites for managers only. There are an amazing amount of handouts and notes there at any time".



The warehouse (above) is to house an 8000m<sup>2</sup> recording facility

## ENTER STUDIOS 301

It's the longest established recording facility in Australia and as old as Abbey Road in London. The precursor to 301 was formed in 1926 by EMI, out at Homebush. Then in 1954 it moved to its current location at 301 Castlereigh street Sydney - and its been there ever since.

Just a few years back, in 1996, a consortium headed by studio general manager Jim Taig bought the place. A while later, Tom Misner announced he would establish Mirage Studio, a mixdown room with a Neve console, at his nearby SAE College.

"The target was to kill off 301" states Misner. Why? "Because Jim Taig upset me five years ago. That's why Mirage was started".

The campaign escalated with the establishment of the new complex, which is scheduled to open this winter.

"They could see this coming along. The definite clear picture was that Mirage would have closed them within six months. Jim looked at his options, and I was one of them".

"They approached me via Martin Benje (a Mirage consultant). The actual deal has to stay a secret. I don't know what they paid

*The old bank is next door to the studio warehouse, with a garden/courtyard between.*



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## M3000



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## Finalizer 96K



### STUDIO MASTERING PROCESSOR

The latest generation of TC's multi-award winning Finalizer technology, now with 96kHz internal 3-external processing! This revolutionary dynamics processor puts the world of professional mastering within reach of every studio - large or small. Incredibly versatile yet easy to use, the Finalizer 96K can add unprecedented levels of clarity and punch to your mix.

## FIREWORX



### DIGITAL EFFECTS PROCESSOR

Want to breathe some fire into your music? Get ready for FireworX! Create just about any effect imaginable - from mild to wild! Choose from stunning palette of effects including vocoder, Ring Modulation, Synth Generator, Pitch Shifter, Reverse Delays, Fractal Noise, Feverb, Dynamics, Flange, Phase...and more!

## Finalizer EXPRESS



### STUDIO MASTERING PROCESSOR

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## M2000



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for it originally, and that is of no interest to me. I didn't look at replacement costs. I just looked at what its worth to me at this point in time. And I made an offer".

"The deal is that if you keep me waiting, I make another offer which is lower. The offers go down. I'm too busy to do counter offers".

Misner bought the studios, goodwill and strata title to the floor on which it is located.

"The problem with EMI (301) wasn't the business but how it was setup. There are a bunch of people, too many partners. There is no secret Mr. Big behind it. Everything had to be reported a certain way. A studio is a personality business, 301 had to be a personality business".

## THE NEW 301

Mirage, M Studios, 301. Confused yet? What will happen is that the new complex at Mitchell Road will become Studios 301, with two large studios and equally large control rooms.

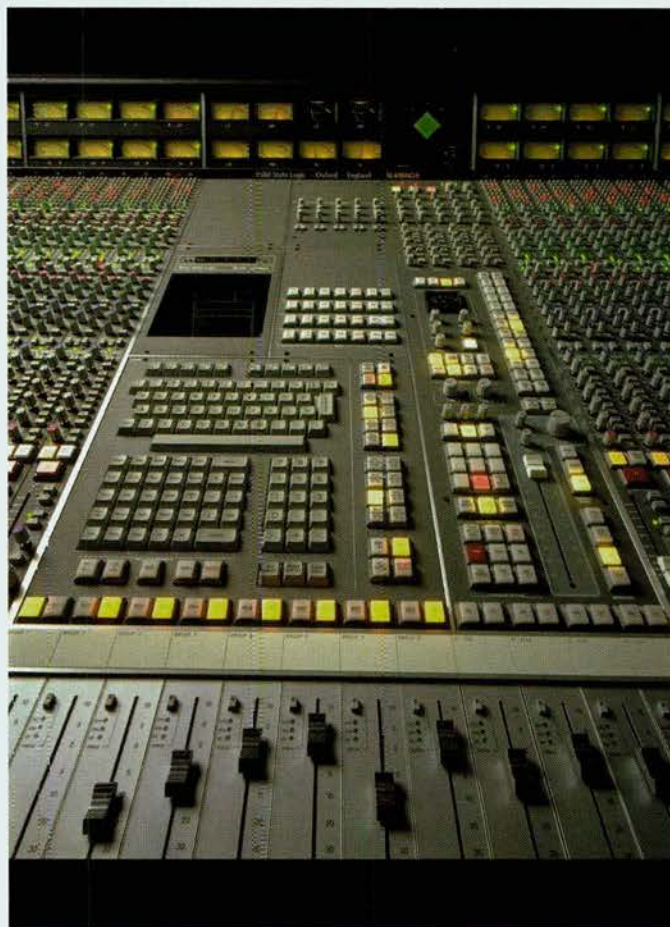
The complex is has now had major construction done. The bank building is tastefully renovated as offices and edit suites, with accommodation on top. Glass feature wall, timber floors and \$600 light fittings are all integrated. Its a good look.

The courtyard between the old bank and the warehouse studio hold great promise as a BBQ and chill out (or heat up) area. Its also easy to park a car nearby.

The warehouse is the scene of massive construction. The roof has been supported by steel columns placed through the original concrete floor. Massive steel RSJs, one measuring 17m long, support the roof.

New concrete has been poured, with rubberised cement around the ceiling supports. In places the concrete is now up to 1m thick, creating Australia's only NR 10 recording studio, says Misner.

Peter Knowland of PKN Acoustics is working up the design of the orchestral studio, alongside Tom Misner. The orchestral studio is 310m2 in size, with full height. It will cater to an 80 piece



*SSL G56+ will be installed in the orchestral studio control room*

orchestra, or 100 at a pinch. "It's the only room in the country big enough to put an 80 piece orchestra in. Any LA conductor will not work without a proper environment" says Misner.

The 19mm hardwood floor of the orchestral room will be on wooden joists which sit on rubber. The whole floor resonates while the orchestra plays on top.

The 110m2 rock room sits on a solid concrete floor.

The two huge control rooms are 100m2 each. Roger D'Arcy (Recording Studio Architecture) is working on the control room design with Misner. D'Arcy is one of Europe's leading acoustic designers, and is based in London.

Serious consultation has been done with leading producers, engineers and consultants. A recent site meeting was attended by people like Christo Curtis, Glen Pfimister, Brandon Frost, Chris Gordon, Edward Primrose, Wayne

*MORE >*

*The interior (left, is more advanced at presstime than our picture details. The ceiling is now isolated from a new floor which has been poured over the top of the original slab. Will it open in Winter?*



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Goodwin, and Adrian Bollard. While I'm there, Richard Lush and Les and Margaret Gock arrive for a look.

There will be, says Misner, The Effects Rack from hell in each control room. He has ordered a new SSL 56G+ console with a film option for the orchestral room, and the Neve VR console has been refurbished for the rock room.

The there's the machine room. It'll contain 2 Studer 827's, 1 Studer A800, 2 new Radar 24 bit, 24 track, a 24 channel Protocols, 3 Tascam DA88's, 3 ADAT XT's, a CD burner, cassette deck and DAT machines. One central machine room will serve the whole facility.

Upstairs on a mezzanine floor will be a smaller mixing room to cater to the \$500 a day market, says Misner, along with three mastering suites - if they move out of the current 301 premises.

"I can't make money out of this. I've been in business too long. Common sense prevails that this will not make money. It'll kick over and keep itself going and make enough to update itself" says Misner.

"The main thing now is to integrate 301 into here. There won't be a negative vibe going".

Jim Taig isn't talking about his future, but is staying on as a consultant for the time being.

At presstime the construction was well underway with the control room walls going up and wiring planning in progress. It doesn't look like its on schedule, but Misner insists it is. And his flat management system ensures that decisions get made fast. While I'm there the builder barges in without preamble and demands Misner allow a change. It happens.

Every Friday the builder and Misner do the accounts, argue, and settle. The construction process is as fast as fast can be. Connections will keep you posted as to progress.

• Julius Grafton

## Tom Misner on:

### Flat management

SAE has a novel management structure for a \$250 million company. There is almost no management!

Tom Misner has two main lieutenants. Rudy Grieme runs the schools in Europe, and Marcel Gisel in the USA.

At each school, every manager has a certain amount of authority to run their own show. "I put systems in place, if I want to control every move you make, then you're going to spend so much time reporting to me, (and then) you got to have middle management. A good person at the bottom who could go all the way, a middle manager will stop them" says Misner.

Each school that is opened up is run by an ex SAE manager from elsewhere. "For example, my Sydney school is now run by my manager from Auckland. Before that he was in Adelaide".

"My concept doesn't need to be instructed. I want them to run like a small business, looking for opportunities. I don't have contracts. But what I say is a deal, is a deal. The only major drawback is that motivation relies on me. This management system can only work while I'm here".

### The record company

If SAE has turned the music recording business on its head, then Tom Misner's next big idea should cause palpitations at some of the big record companies.

"Now that Mushroom has been sold there is no truly independent label with any

weight in this country. This is a small market and the major record companies make this major mistake".

"They get a budget, they look around, they sign two bands for five albums and then put a lot of money into them".

"My idea is I sign 20 bands, and work on 5,000 CD output. I finance the whole thing and sign them based on a one off deal with an option. I do not want to have the responsibility of having the bands life in my hands. I can record them here on downtime, or at SAE studios anywhere".

"I can distribute anywhere in the world - I've got addresses everywhere and PR people".

"I throw 20 acts against the wall and all I need is one act to stick!"

### Tom's grudges

"There's always grudges left to settle. I have a really good memory, and now I have a lot of money. I do forgive. Usually after about 400 years, that's my forgiving time. Worse than an Elephant!"

"I'm fair. I don't take shit, I'm very abrupt, very direct. I don't beat around the bush and I'm not terribly polite about it. I know what I want, people always try to read more into it".

"I've never had to sack anybody. It takes a while to win my trust, but once you do I'll do things for you. My word sticks. I'm impatient. Extremely. Do it my way - or prove to me your way is better. But do it now. I hate beating around the bush".

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SUB-15

**PF-215**  
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Program Power Handling: 1000W  
Nominal Impedance: 4  
Sensitivity (1W/1M): 102dB

**PF-015**  
Frequency Response: 55Hz - 20kHz  
RMS Power Handling: 300W  
Program Power Handling: 600W  
Nominal Impedance: 8  
Sensitivity (1W/1M): 100dB

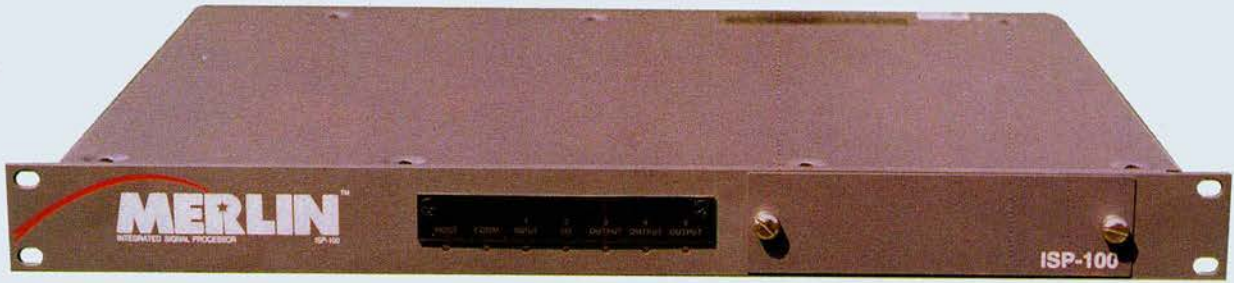
**PF-012**  
Frequency Response: 60Hz - 20kHz  
RMS Power Handling: 250W  
Program Power Handling: 500W  
Nominal Impedance: 8  
Sensitivity (1W/1M): 99dB

**SUB-15**  
Frequency Response: 40Hz-1.8kHz  
RMS Power Handling: 300W  
Program Power Handling: 600W  
Nominal Impedance: 8  
Sensitivity (1W/1M): 100dB

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# MERLIN ISP-100 INTEGRATED SIGNAL PROCESSOR

*SID KIDMAN investigates a hardware and software solution to audio processing which is growing in popularity*

The name "Merlin" conjures association with that mythical magician of ancient legends, who had power over the elements, and this association is quite reasonable; the unit is capable of "fixing" a varied and complex range of problems, with regard to getting the best sound reproduction in a given space - or several spaces.

Merlin is a one rack unit piece of hardware. It weighs 5.7 kg and is 365 mm deep. Allow another 10 mm or so for various protrusions.

The rigid steel case is finished in a dark gray semi-gloss, with white screen printing. The mounting flanges would support the unit in a fixed installation with perhaps a little sag over the years, but in a road case, rear support would be wise. The facade is plain, with the "MERLIN" name on the left, a Perspex plate above seven LEDs at 15 mm

## ~ REVIEW ~

centres in the middle, and a recessed bay on the right. The LEDs indicate the functions (from left) of: power on/off, low battery, module type/number installed, signal clipping, and host communication status. The Perspex covers the printing above each led, and provides a surface for labeling. The recessed bay is covered by a metal plate with spring loaded slotted (but finger tightening) bolts and is easily removed to expose it's facilities.

This bay houses from left, the RS232 Port and the toggle for the Port. Down selects this one, while up selects the RJ-45 port at the rear. Next is the back up battery with a life of about four years. (A removal lever is thoughtfully velcro'ed to the back of the plate.) The fuse holder and the on/off switch occupy the remaining space. There is a reset micro-switch below the fuse.

The sides have generous ventilation slots to support the work of the cooling fan. The back of this unit is fully optioned, and hence, from left there is; the power input, (a smart supply which will work from 50 V upwards), the RJ-45 connector connects to a modem for remote programming, but you'll need a PC and connection software for this. Then there's an eight pin with ground GPI connection socket, (general purpose interface), and above this a coaxial female socket, (external precision frequency reference), and then five "slots". These slots are labeled MOM for the first three and MIM for the last two. They are respectively output and input modules, and are paired (A/B) XLR analogue connections.

Selection of MIM (input modules) and MOM (output) modules allows the unit to be configured as anything from 2x2 to 2x8 or 4x2 to 4x6. You choose. Each MIM or MOM is loaded with two balanced XLR connectors. You can load up to 3 MOM and 2 MIM modules, or 4 MOM and 1 MIM.

## The "ouch" factor

This unassuming hardware unit retails in basic form with an MIM and MOM, at a little more than \$4000, with extra MIMs or MOMs at around \$1200 each. One rack has space for 10 connections, configured in the test piece as 4 in 6 out, but can be arranged in any combination of pairs to suit the application, and multiple units can be combined. This pricing will offer value to contractors aware of Merlin's capabilities. It should also arouse curiosity for operators in other areas. Do you run a mobile rig or hire firm? Then read on.

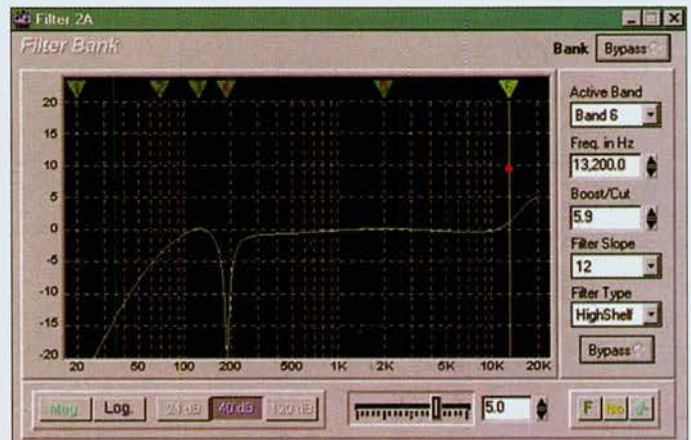
In conjunction with a laptop, this unit could substitute in the front house rack for an up-market programmable digital graphic, and sophisticated crossover unit, all rolled into one, and as such, starts to look pretty good value. The software program is easy to operate, the unit is tamper proof, and with a modem attached, help is only a phone call away. Indeed, the software, via the computer interface is where it all happens.

## The compensation

Merlin comes with all of its software crammed onto one 3.5" floppy and installs relatively easily in a Windows 3.1 or 95 environment on any reasonable PC. The latest operating version updates are available on the net free of charge, along with the manual and other data, and EVI will happily write a discrete program if the twenty or so offered don't suit.

The manual is most comprehensive, well laid out, and well indexed, and will be a useful resource to the user. It's use however is not mandatory, as exploring the program will bring results.

*(continues over the page)*



Screen display (above) is one of many. PC control is where it's at for Merlin!

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Write in Reader Service Number: 172

The specs are laid out in the third last subsection of the manual. Suffice it to say that the digital signal processing utilises the latest technology, and performance supersedes normal hearing requirements, but is of academic interest. There was no reference to sampling rate either in the manual or on the net, [www.eviaudio.com/merlin](http://www.eviaudio.com/merlin) but according to the net, converting is 20 bit with 24 bit D/A and A/D modules starting to ship as this article goes to print.

Internal processing is greater than sixty meg. A process called "dither", which is not quite like the selected noise injection in other converters, allows these converters to match precisely to 16 thru 24 bit source or destination. (Including odd numbers - handy for matching to domestic gear that doesn't quite deliver its spec's.)

## Now the exciting part

The software was installed on a PC running Windows 95, complete with the latest version update from the "evi/Merlin" net site, and the VUE-IT icon conveniently put on the desk top. A CD player was patched to two of the inputs, and two of the outputs to small stereo monitor. The procedure as outlined in the manual was then followed, with the computer connected to Merlin via the normal modem connection at the computer end.

Be careful to hold the reset button in whilst switching on the computer, at least the first time. For some undiscovered reason, the computer would not light up until this was done, and it is mentioned in procedure. With this setup, it was possible to try the various facilities offered, and hear them working. The word exciting is justified with reference to the absolute detail in which the sound can be manipulated by the DSP within Merlin, and the best way to appreciate this is to follow through what could be a typical setup.

Double clicking on the "VUE-IT" (Virtual User Environment - Interactive Technology) icon brings up the file control panel. From here a new project can be opened. This must be named. It could be "test 1", or "Chevron Ballroom", or "Charlie's disco". Very quickly, one moves into the "QuickMAP" selection control panel, which once again must be named.

Here, the type of system to be set up is selected. Some twenty or so are on offer, and range from inputs straight through to outputs, inputs routed to a number of outputs and multiple combinations. Outputs can be from full range, to multi-band crossover channels.

However a two input to a single output was not discovered. This could be taken up with EVI, because it would be desired in summing left and right inputs to a mono sub channel. Copious processing can take place between the input and output. Here Merlin finesses. In a convention centre or hotel, multiple sound stage areas can be catered for. In a theatre or church, front house, wings or fold-back, and delay fill could be set up. In a disco, surround sound could be set up. As little extra as a mixer may be all that is required, after installing Merlin, the amps, and the speaker systems. If the limiters are set correctly, the amps and speakers are well protected, and the set up can be secured so that it can't be changed by accident or mischief.

For a detailed description of every function, read the manual, (pull it off the net) but the following description of a single channel in a stereo three way for a touring rig will demonstrate some of the power of Merlin. At the input box, gain and polarity (also mute and bypass) can be manipulated. Controls can be generally be accessed via the mouse, a dialogue

box, or the cursor buttons, and are available in course or fine mode.

Next in line is the select box. This selects which input channel the rest of the chain will be connected to. Then comes compression. This has all the assets of the best compressors and then some, and it's operation is clearly described in the manual. It shares similar features to the limiter, at which point these features are defined. After this there is a filter box. This offers ten filter banks. Each one can be all pass, high pass, high shelf, low pass, low shelf, notch, peaked high pass, and true parametric. (Good huh?)

Stage five is the three way cross-over. This is just as comprehensive. It offers the choice of Butterworth, Bessel, or Link-Riley, 6, 12, 18, or 24 dB slopes, cut off from 20 Hz to 20 kHz on each band, and pass band gain, and polarity. (Getting better)

The chain then continues for each band, with another filter, (same as the first) and then delay. The delay can be set from 0 to 900 msecs. Two boxes remain before the output. The last is the dither, which would be useful in matching to a digital recording device. The penultimate box is the ultimate sort of limiter. Hard or soft knee can be chosen, and the following features manipulated; 0.02 to 50 msecs. of attack, 0 to -60 dB of threshold, and 0.02 to 5000 msec. of release. Called unfamiliar controls in the manual, two extra controls are; the crest control which ranges from zero to one, and compensates for the ratio of peak to average signal, and the detection window, ranging from 0.02 to 5000 msecs., which varies the period over which the value of the signal is averaged, and can compensate for materials with different energy densities.

Other nice touches are available. For example, the filter banks graph can be viewed as amplitude or phase over frequency. It can be either log or linear, and have 24, 40, or 120 dB of amplitude. Maps can be stored for recall. Banks can be copied. EQ-ing and other facilities can be done on the trot, but be warned, relays are activated during map changes, which causes a short gap in program output.

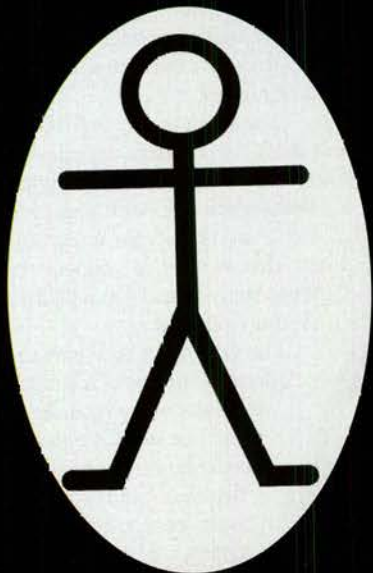
## In conclusion

There are a number of product packages on offer for installation work, some more specialised than others, but Merlin is easy to set up and use, and is packed with value and power, and offers security, and safety for the down-line equipment, and ongoing development. In some ways it is limited in use. For instance, it is not adept at mixing different sources to different outputs when there is varying realtime demand on routing, but for specified situations, it more than makes up for this. Once the PC is attached, it becomes quite flexible, and indeed could be controlled from the other side of the world. In a two word description, Merlin is a "hot package".

• Info: EVI/Telex, call +61 2 9648-3455



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PRO AUDIO NEWS

## DB Condensor Microphone

\*By Paul Melevende

**T**he DB 481N microphone is a large capsule, cardoid condenser microphone with a single, one inch, gold vapor deposition diaphragm. It's published specs are a frequency response from 30 to 18k Hz, 200 ohm impedance, with <26db (A weighted) of internal noise. It comes with a shock mount, external 240V power supply, long quality mic cable and a snazzy little road case.

It's squarely aimed at the studio or PA owner who's after a high quality condenser microphone without the (usually) high powered price tag.

My first impression when opening the case was 'How do they do this for the money?' and I fully expected the real cost savings to be displayed in the sound. Not at all 'not even close' after a couple of months with a pair of these mics, I have recorded acoustic guitars, bongos, tabla, sitars, whisper quiet and 'jet engine' loud vocalist, electric guitars and have even used them as overheads. In every appli-

cation, they certainly help remove any unwanted rumble or 'plosives' that may be caused by an overzealous vocalist, but not as a replacement for proper recording technique. The capsule is internally mounted on a rubber base presumably for further shock resistance.

### ~ REVIEW ~

What would I change? Well that would depend on my position. If I was the distributor of these microphones, I would raise the price a few hundred dollars, and go buy the boat I always wanted!

As a struggling project studio owner putting in my 2 cents worth, first I would change the perforated steel pop filter for a wire one. Why? If you disassemble the mic and put the steel & mesh pop filter up to your ear, you can hear the sea side! It's not loud but it's there and I'm pretty confident that the mic's noise performance (though already admirable in use) would be improved by this simple design change. I believe DB have already addressed this.

I would also add an attenuation pad and move the rolloff switch to the outside of the microphone so you don't have to disassemble it just to hear the difference. Once again, I believe there is another model (The DB-487) that also takes care of these minor niggles.

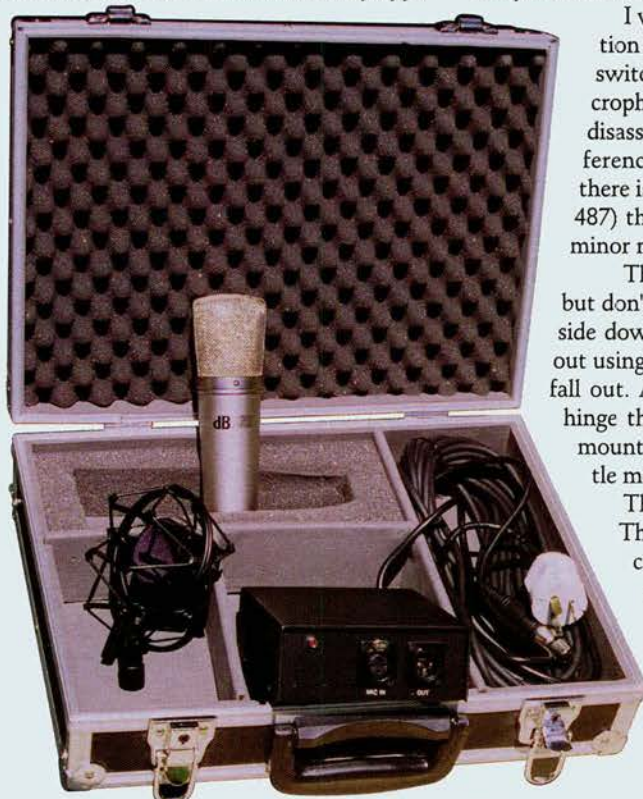
The shock mount is effective, but don't try to insert the mic, upside down from the bottom without using some gaffa as it's going to fall out. Also the single screw and hinge that is used to connect the mount to the stand could be a little more positive.

The verdict? A true bargain. These are the sort of mics that can make your recordings stand out without spending thousands of dollars. You will find yourself using less (or no) equalization, and resorting to changing microphone position or the room for a different sound instead.

If you are currently using dynamic mics for vocals, overheads or stringed instruments, go buy some!

- DB 481N mic A\$595 (currently bundled with the case, mount and power supply)  
CMI +61 3 9315-2244

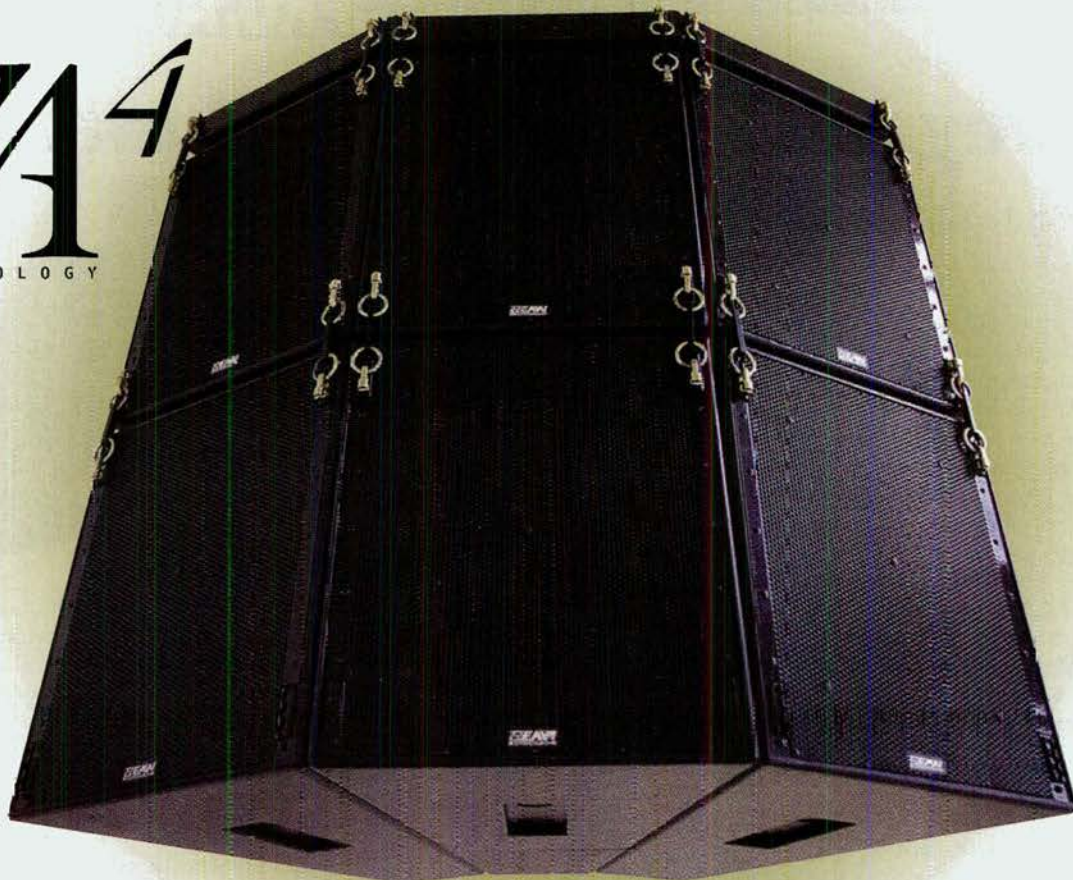
\*Paul Melevende is an Audio Engineer and IT systems analyst



cation, they have remained strong contenders with client's comments containing words such as smooth, realistic, clear, accurate, and warm. I firmly agree.

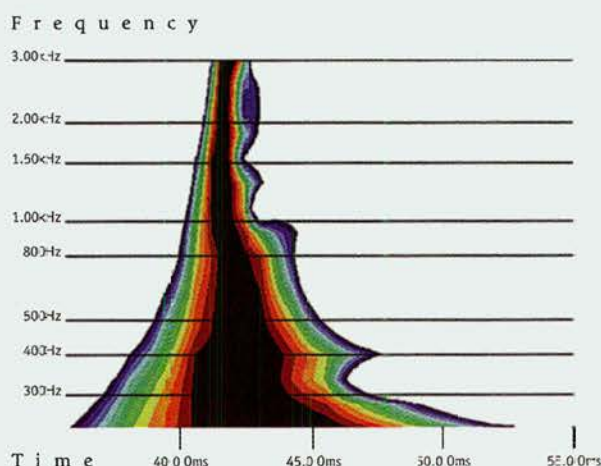
The bottom ring of the mic can be unscrewed, and the outer casing slides down to reveal two small circuit boards, the output transformer, and the bass roll off switch (why did they put this inside the mic?). This does

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This wavelet image indicates amplitude in colour (brown represents 0 dB, violet represents -12 dB) over time (horizontal axis) by frequency (vertical axis). The smooth, steep, tightly-packed slope through the upper midrange clearly shows the unified arrivals of critical vocal intelligibility information.



Horizontal plane.

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Today, our new VA<sup>4</sup> Technology™ extends that same level of array control to the vertical plane. And it goes one step beyond, solving problems in the fourth dimension: Time.

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Write in Reader Service Number: 123

# Peavey enters concert PA market

*EV the target and price the attraction*

**P**eavey have come along way in the pro sound market in the last few years. They have developed separate audio divisions and are now attacking new areas of the market. A few years ago Peavey developed the Architectural Acoustics division which has been very successful. They then released MediaMatrix which has dominated the project market. Now Peavey is branching into Concert Sound with a complete range of amps, speakers, mixers and more.

In order to support this product range, the Australian distributors, Audio Telex Communications, will open new Pro Sound Dealerships, which will provide limited dealer access to products like the DTH enclosures.

At the Australian launch of the Peavey DTH system, ATC sales manager Stuart Craig told dealers that ATC had never sold direct, nor did it do installations. Rumours to the contrary are false, he said.

The DTH system costs about two thirds of the price of most other brands, says Craig. ATC are likely to target EV in the marketplace.

The low frequency speakers selected for the DTH series come from the upper-end of the Peavey Black Widow series. These speakers feature 350 watt continuous, 700 watt program, and 1400 watt peak power handling capability. The unique feature of the magnet struc-



ture is that it allows the cone and basket assembly to be field replaceable if it were to become necessary. The magnet structure is self-aligning to the basket. It is bolted, the pic below shows.

The speakers utilise Kevlar fibers in the cone pulp matrix. These cones are have raised the reliability of the Black Widows significantly. Voice coils are rectangular wire formed by Peavey and wound to exacting tolerances for very tight impedance control. The adhesives and activators for the coils are similarly formulated to exacting Peavey specifications.

The high frequency driver is the Peavey 44XT (2" throat, 4" dome) with Ferrofluid. Many improvements have been made: the diaphragm mass has been significantly reduced, and a new phase plug, and throat exit are now standard.

The DTH series utilises the Peavey CH-7 constant directivity horn. The nominal radiation pattern for this horn is 80° horizontal by 40° vertical. However, when installed into a system such as the DTH 4115 for example, the average radiation pattern from 500 hertz to 16 kilohertz is 80° horizontal and 75° vertical in an anechoic environment. This apparent change in radiation pattern becomes understandable when considering that the frequency-averaged system pattern is greatly influenced by cabinet reflection/diffraction, and crossover design.

Neutrik Speakon connectors, and high current interconnects and switches are selected for the DTH series crossover construction. All of these components are wave soldered onto high quality, fiberglass printed and etched circuit boards with high current 2 ounce copper circuit paths. The individual copper circuit paths on the boards are maximum area, which insures that their equivalent circular mil area is greater than the related wire interconnections.

*The DTH 4000 range comprise:*

**DTH4115:** 1 x 15" woofer and 2" driver, 80 x 40 horn. Available with/without fly points. From A\$2540.00 retail inc tax.

**DTH4215:** 2x15" woofers and 2" driver, 80 x 40 horn. Available with/without fly points. From A\$3550.00 retail inc tax.

**DTH215b:** Dual 15" subwoofer. One woofer is mounted backwards. This anti-axial arrangement of the drivers eliminates virtually all even order harmonic distortion. \$2468.00 rec retail inc tax.

**DTH218b:** Dual 18" subwoofer. One woofer is mounted backwards. \$3051.00 rec retail inc tax.

**DTH-SM:** Single 15" and 2" horn stage monitor. Compression driver mounted on a conical 60 degree CD horn. Stage Monitors available in left and right versions. \$2718.00 rec retail inc tax.

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provides smooth power response, maximum sensitivity and stable amplifier loading.



facilitate portability when a permanent installation is not fixed.



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**BASF NATIONAL TRACKING GUIDE**

# BASF

**ARTIST                      PRODUCER                      ENGINEER/PROGRAMMER                      NOTES**

**New South Wales**

<b>A # Sharp</b> Jeff Cripps Tel: (02) 9153 9988. 24 Track Analogue			
Juke Box Live	Jeff Cripps	Jeff Cripps	CD
Oatley West Primary School	Jeff Cripps	Jeff Cripps	CD
Hank Koopman	Jeff Cripps	Jeff Cripps	CD
Donna Marie	Jeff Cripps	Jeff Cripps	CD
Fowlhouse Jack	Jeff Cripps	Jeff Cripps	CD
<b>Alberts Studios</b> Leesa Tel: (02) 9953 2544. 48 Track			
Aleesha Rome	Barry Andrews		Album
The Whittlams		Rob Taylor	Album Tracks
Tenor Australls	Bruce Brown/Wayne Findlay	Bruce Brown	Album
Plonge	Steve James	Steve James	Album
Cellfish	Sean Lowry/Rob Taylor	Rob Taylor	Single
<b>Charing Cross Recording Studios</b> David Sykes Tel: (02) 9387 8362.			
Quality Neve 24 Track Analogue with Automation			
Big Heavy Stuff	Wayne Connelly/Band	Wayne Connelly	Album Mixing
Colourblind	Dave Trump	Dave Trump	Album Mixing
Peepshow	Dave Trump/Band	Dave Trump	EP Mixing
Celtic City Sons	Jeremy Allom	Jeremy Allom	Album Mixing
Atticus	Jordan Bach	Jordan Bach	Album Mixing & Tracking
<b>Damien Gerard Studios</b> Marshall Tel: (02) 9660 8776. 24 Track 2" Music Studio			
Monkey Temple	Band	Russell Pilling (E)	Album
Lucy De Soto	Russell Pilling	Russell Pilling (E)	Album
Cellibate Rifles	Kent Steedman/Damien Lovelock	Dave Trump (E)	Demos
Elia Bel	Marshall/Artist	Russell Pilling (E)	EP
Fendahlene	Paul	Russell Pilling (E)	EP
<b>David Hinds Recording Studios</b> David & Lyn Hinds Tel: (02) 6581 1235. 16 Track Digital			
Balance	David & Lyn Hinds	David & Lyn Hinds	Album Tracks
David & Lyn Hinds	David & Lyn Hinds	David & Lyn Hinds	John Oxley Motors Jingle
<b>Feral Studio</b> Jon Robertson Tel: (02) 6299 3244. 16 Track			
J. Coates	Jon Robertson	Jon Robertson	Demos
Blues Channel	Jon Robertson/Band	Jon Robertson	Demo
Monypeni	Jon Robertson	Jon Robertson	Album
Exhibit A	Jon Robertson	Jon Robertson	Album
JVB	Jon Robertson	Jon Robertson	Mixes
<b>Igloo Recording &amp; Rehearsals</b> Chris Davies Tel: (02) 4927 6822. 16 Track			
Little Hornet	Tyrone Penschorn	Dave Carter (E)	Pre Production for Album
Davola	Artist	Chris Davies/Dave Carter (E)	EP
Bias	Band	Chris Davies (E)/Mugga (E)	Demo
<b>Infinity Digital</b> James Tel: (02) 9672 3513. 64 Tracks, ProTools 24/Mix, Tracking, Editing, Mixing & MIDI			
Cairns Casino	Venables & Assoc.	James Nowiczewski (E)	Soundtrack edit/mix
Switch	Band	James Nowiczewski (E)	EP
Amanda Webb	James & Stefan	Stefan Novak (PR)	EP Pre Production
Suzanne Capper	James & Stefan	Stefan Novak (PR)	Album Production
Wonderland Sydney	Stefan Novak	Stefan Novak (PR)	Vocal Takes & Dubs
<b>JMF Recording Studio</b> Fran Esther Tel: (02) 9790 4097. 32 Track Digital, 2" 24 Track Analogue			
Surreal Perditiion	Band	Tony Jarret	Album
Jukebox 90	Band	Ralph Esther	Demo
Cold Turkey	Band	Guy Saminaden	Album
Inski	Ralph Esther	Ralph Esther	Voice Over
Girls R Us	Band	Ralph Esther	Demo

*>continued over the next page*

## MACKIE DEBUT SPEAKER SYSTEMS AT NAMM

**M**ackie were a star of the 1999 NAMM trade show in LA last month. They have brought new loudspeaker systems to market in record time, after buying the Italian manufacturer RCF last year.

Mackie previewed 12 new speaker models at NAMM and Mackie will be focusing on fully active systems and educating the market to the benefits of this technology. The first products we will see here in Australia are the SRM450 Active and the C300 Passive Speakers. These two models come in the same injection moulded box, elegantly designed with fly points, stand mount and a cutaway for stage monitoring applications.

The SRM450 (right) is a 2-way biamplified, optimised active system. Features include built-in FR Series 300 & 150-watt amplifiers, precision 24dB/Oct Linkwitz-Riley electronic crossover, 12" low frequency transducer, 1.75" high frequency driver, studio-quality maximum dispersion horn design, high SPL

output, and electronic time correction, phase alignment, and equalisation.

The C300 is a 2-way portable composite sound reinforcement speaker system and features a 12" long throw frequency transducer with a 3" voice coil, high-precision compression driver, studio-quality maximum dispersion horn design, low impedance compensated crossover with full driver protection, lightweight, portable composite moulded design with CG-corrected (centre of gravity), means it's perfectly balanced for easy handling.

Also soon to be released in the Australian market will be the Mackie Fussion 3000 Active three way full range and 1800sa sub bass system.

The Fussion 3000 (top, right) is a high output, medium throw active speaker system. It features specially designed high output transducers for exceptionally low distortion at full power. The 1800 sub system comprises the 1800sa sub which incorporates



# DENON

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## NAMM '99 WITH DUNCAN FRY

From page 16

year, it took us half an hour just to get out of the car park before we started the freeway crawl home!

Los Angelenos know this and avoid the place unless they have a cast iron gold dipped reason to go there. In a lot of cases the NAMM show is not a good enough reason.

Then there's nowhere to go.

LA Downtown is a city centre sort of place, all banks, office buildings, big hotels. Afterhourswise (jeez I'm starting to talk like them!) you have to get to Hollywood for some semblance of party life. If you've just queued half an hour (or more - the lines for some buses stretched back into the show) to get on the shuttle bus to your hotel after a busy day's wheeling and dealing, you don't really feel like sitting in a cab for another half hour or so to get to somewhere else. If you're like me you want to flop down, ransack the mini bar and loll around farting! (all that airline food!).

Dave Park and I had rented a car, so we were spared the shuttle bus shuffle. One night Mark McLean from Live Sound Magazine invited us to drinks 'n'

things at the Hyatt. "It's on Figueroa," he said.

After driving up and down Figueroa street for half an hour (not easy since it's one way! But heck - we're tourists), we still couldn't find it. Turned out it wasn't on Figueroa street after all, but what were we to know!

"Maybe it's a bit bit further on," I suggested to Dave, who was driving.

We cruised further and further up the street, and then - whoops - we were on the Pasadena freeway. This is the 110, the first freeway in LA and it dates back to 1939. It's short, fast, a real drag strip, with entrance and exit lanes shorter than the average driveway. A bit like a roller coaster ride - there's no stopping until you get to the other end. 15 minutes later we're roaming around Pasadena thinking 'where the f\*\*k are we?!'

When the show was at the Anaheim Convention Center, though, it was a different matter. An easy 40 k down the I-5 freeway, drop the family at Wally World for the day while you wander around in audio heaven till hometime. If you were staying there, there were loads of cheap motels and eating places

It's not NAMM's fault, though. I'm sure they'd have kept the show at Anaheim for ever and a day. Apart from the geriatric parking robots, it was a popular venue. But the Center's been pulled down for rebuilding for the last 2 years, and likely to be for 2 years more. Dave and I drove down there on our last day just to check, and it's as flat as a pancake. Just the dome left out the front.

Actually, when I say there was nothing that I wanted to buy, that's not strictly true. Roaming around down in the Kentia hall I saw a stand selling these (see pic on page 16).

What is it? It's a Smokey - a complete guitar amp with speaker in a packet of cigarettes! No more fronting up to a gig with a Marshall stack. Just pull your Smokey amp out of your T-shirt sleeve, mic it up, and away you go! I had to have one! Only US\$25, complete with free T-shirt. I chose Camels, naturally, the worldwide bluesman's choice of carcinogen.

I can't wait to whip it out at the next Old Farts on Heat gig.

*Duncan Fry is a director of ARX, the Australian audio manufacturer.*



two high current, high efficiency amp modules connected in parallel capable of delivering over 3000 watts into a 2ohm load. The 1800s slaves off the 1800sa to complete the system.

### POWERED MIXERS

There are 5 models in this new Series with power ratings from 500 to 1000 watts.

• For more information on the Mackie Designs range, contact Australian Audio Supplies on +61 2 4388-4666 or by email to: sales@ausaudio.com.au

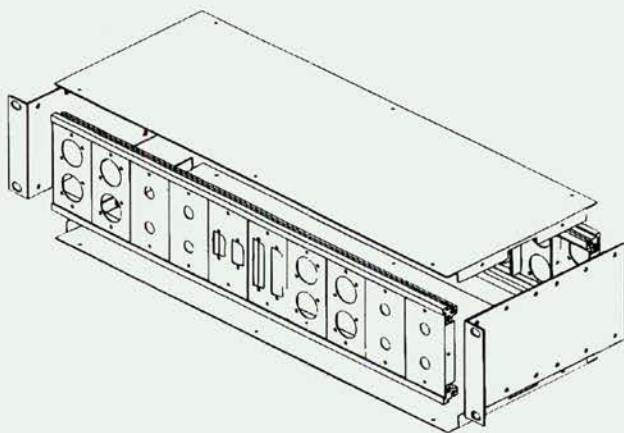


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# How to do it

## DUNCAN FRY'S LIVE SOUND MIXING SERIES

### - CABLES & CONNECTORS (Part 12)

#### Signal Connectors

3 pin XLR type connectors, made by Cannon, Alcatel, Switchcraft, Neutrik and many others, but generically usually called Cannons, are the industry standard. They come in 2 sexes - Male and Female. The male has 3 pins that stick out; the female has 3 holes that receive these pins. Freud would have found plenty to interest him in the pro audio biz!

RULE - "The male sends an Output signal, the female receives an Input signal." On all equipment, the males are the Outputs and the females are the Inputs - mixing consoles, crossovers, effects units, processors, from the biggest board down to your favourite Widgetron.

#### XLR CONNECTORS



The microphone has a male output on it which plugs into the female end of a microphone lead. The other end of the lead has a male connector on it which plugs into the female connector on the stage box and so on. However, you may see on some equipment a

Male connector next to the Input also marked as Input. This is not breaking the rule, but it enables a lead to be run from one Input to another when slaving up multiples of things.

For Example. An amp rack may have 2 stereo amps in it, which is 4 separate amps. To get access to all 4 amps your rack needs 4 female Inputs. If you want to run the same signal to all of these amps you would have to make up a special splitter lead with 4 male Outputs wired together on it.

The easy way is to wire a male connector next to each female, so you can run an ordinary short microphone lead (a 'patch' lead) from one amp to the next. No special leads required that could get lost, and a very flexible set up.

#### Exception #1 - Speaker Leads

In the USA, Japan, Australia, speaker leads usually have a female connector on each end. Speaker leads carry large amounts of current, especially for LOW end, and this exception ensures two things:

One, there is no chance of a fragile microphone lead being used as a speaker lead. Two, and perhaps more importantly, it removes the possibility of a speaker lead being used as a microphone lead.

England and Europe in general don't go along with all this, and so their speaker connections obey the previous Male/Female rule.

#### Exception #2 - Schools

Someone who does a lot of school PA installations told me that

many schools reverse this rule and the fixed microphone inputs up on the school stage are often male connectors. Why? Because it's easier to dig the chewing gum out of them! True!



CHASSIS AND LINE EP CONNECTORS

#### Speaker Connectors

As we mentioned before, 3 pin XLR connectors are a common choice for speaker cables as well as signal leads. But they are not the best choice.

1. Speaker boxes and speaker cables in general don't get the pampered life of a microphone lead, and so they frequently work loose, the latches break, and they stop making a strong tight connection.

2. For safety. No matter which protocol you are using for leads, you always have the signal going from a male connector into a female one. At the low signal levels before the amplifier, this is quite safe. But at amplifier levels it can be dangerous, as anyone who's tried to connect up an amplifier in the dark while kneeling in a puddle of beer will agree. Any faults in the AC Safety Earth Grounding and ZAP - you're the Ground!

A multipin connector like the Cannon/Alcatel EP and AP series is the answer to #1. They look like an XLR on steroids, with larger bodies and fatter pins, and handle much more current.

But as far as #2 - safety, well they have the same problems as XLRs.

The answer is the Speakon connector from Neutrik. They have been designed from the start to be used as a speaker connector, coming in 4 pin and 8 pin models.

They are made from Nylon/Plastic, with no bare terminals at all.

You'll recognise them when you see them because when connected up they look like something off your garden hose! The only thing you have to remember when using them is to twist them to the right after you push it into the connector on the amplifier or speaker box. The earlier versions had a locking ring which you also twisted to lock the connector in. The later versions have a push button lock similar to an XLR type connector. Luckily for us, the two versions are compatible.

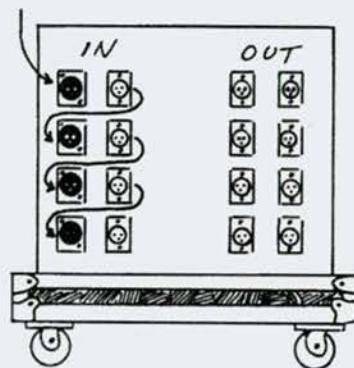
More and more speaker cabinets are being fitted with Speakon connectors as standard, because they're cheap, strong and safe.



ORIGINAL SPEAKON LINE CONNECTOR WITH LOCKING RING

NEW SPEAKON LINE CONNECTOR WITH PUSH BUTTON LOCK

CHASSIS MOUNT CONNECTOR FOUND ON SPEAKER BOXES AND AMPLIFIERS



This is extracted from the top selling book: LIVE SOUND MIXING, by Duncan Fry. © D.R. Fry 1998. ISBN0 646 11235 X. Retail: \$39.00. Available from book stores and music shops everywhere, also through the Connections Shop, call 1-800-635-514.

**BASF NATIONAL TRACKING GUIDE**

**ARTIST PRODUCER ENGINEER/PROGRAMMER NOTES**

*(continued from previous page)*

<b>Megaphon</b> Guy Dickerson Tel: (02) 9550 6576. 24 Track Analogue & Digital Music Recording			
Renaissance Players	Winsome Evans	Guy Dickerson (E)	2 Albums
Cockroaches	Band	Guy Dickerson (E)	Single
Backsliders	Band	Guy Dickerson (E)	Album
Llew & Maria	Llew Kiel	Guy Dickerson (E)	Album
Schneiders Ape	Guy Dickerson	Guy Dickerson (E)	EP
<b>Nu-Town Studio</b> Greg Hopping Tel: (02) 9516 3306. 16 Analogue/32 Digital Music Production & Remix			
Erana	Greg Hopping	Greg Hopping (E)/Sofie Loizou (PF)	Demo
Rory	Greg Hopping	Greg Hopping (E)/Sofie Loizou (PF)	Demo
Jim Shipstone	Greg Hopping	Greg Hopping (E)/Sofie Loizou (PF)	Single
Elie	Greg Hopping	Greg Hopping (E)/Sofie Loizou (PF)	Album
<b>Paradise Studios</b> Bill Field Tel: (02) 9357 1599. Custom Mixer, Moving Fader Automation, Studer A800, MCI JH16, Valve Outboard			
Leesa Gentz	Rod McCormack	Ted Howard (E)	Tracking
The Gap	Nick Fowler	Jason Lea (E)/Alex Wong (E)	Record/Mix Album
Big Band	John Morrison	Steve Wilson (E)	Record/Mix Album
Cane Toads Doco	Martin Armiger	Michael Stavrou (E)	Mix For Film
Jack Nolan	Artist	Michael Stavrou (E)/Jason Lea	EP Record/Mix
<b>Paul Bryant Mastering</b> Paul Bryant Tel: (02) 9748 0222. Mastering Suite			
Road Kill	Dave Tozer	Paul Bryant (E)	CD Master
Vermillion	Geoff Lee	Paul Bryant (E)	CD Master
Angel Rain	Jeff Cripps	Paul Bryant (E)	CD Master
Splash	Chris Panagis	Paul Bryant (E)	CD Album
Alien Christ	Shane Fahey	Paul Bryant (E)	CD Master
<b>Q Recording</b> Richard Muecke Tel: (02) 9212 4851. SSLG+ 2" Analog			
King Pest	Paul McKercher	Paul McKercher	EP
Segression	James Cadsky	James Cadsky	EP
Doris Goddard	Richard Muecke	Richard Muecke	EP
You Am I/Ginspoon	Tim Rogers	Rob Taylor	Music for Feature Film
Jimmy Barnes	Mark Opitz/Jon Farriss	Mark Opitz	Album
<b>Ramrod Studio</b> Herm Kovac Tel: (02) 9939 6651.			
Brendon Warmstey	Herm Kovac	Herm Kovac	Single
Ted Mulry	Herm Kovac	Herm Kovac	Album
Deborah Foletta		G. Phimister	Album Mastering
Swing Team	Band	Herm Kovac	Demos
Emperor's Crown	D. Baselgia	Herm Kovac	Album Tracks
<b>Rockinghorse</b> Anthony Lycenko/Michael Worthington Tel: (02) 6688 4005. Recording, Mixing, Mastering, Audio, Video, Post, Surround 5.1.			
Pirol	Christian Pyle	Anthony Lycenko	Album Tracking
Amazing Rhythm Aces	Keith Glass	Anthony Lycenko	Album Tracking
Orlando Allen	Artist	Michael Worthington	Mastering
Guitar Shorty	Peter Nobel	Michael Worthington	Re Mastering
Paydirt	Band	Zubin Henner	Demos
<b>Sony Studio</b> Sarah Tel: (02) 9383 6461. Recording facility with audio and video product on			
Tim Draxl	Ron Creagher	Ross A'hern	Album
Wanderlust	Michael Bukovsky	Ross A'hern	Album
Wind Soundtrack	Alister Spence	Ross A'hern	Film Soundtrack
Cherry	Michael Szumowski	Tod Deely	Album
Angie Cox	Tony Cvetkovski	Simon Torx	Mixing
<b>Sound Level</b> John Soane Tel: (02) 9552 3200. DA88, 24 Track Digital, Paris Editing			
Knuckleheads	Band	Pat Salloch	EP
Fusion	Band	Pat Salloch	EP
Kessel	Dave Sykes	Dave Sykes	Demos
Justin Simms	Jorden Brebach	Jorden Brebach	EP
John Bee	Artist	Artist	Tracking
<b>Sound Shaft Studios</b> Tcmie Higginson Tel: (02) 9826 7255. Recording/Rehearsal Studio			
Tony Martin	Artist	Tomie Higginson	Album
Inequity	Tomie Higginson	Tomie Higginson	EP
The Downside	Tomie Higginson	Tomie Higginson	EP
Tomie & The Boys	Tomie Higginson	Tomie Higginson	Album
<b>Soundwarp</b> Meredith Brooks Tel: (02) 9905 7144. Mastering			
Doc Span & Ross Williams	Artists	Meredith Brooks (E)	Album
v. Spy v. Spy	Band/Jan	Meredith Brooks (E)	Archival/Album Prep.
Post Remus	Band	Meredith Brooks (E)	EP
Amanda McGuire	Artist	Meredith Brooks (E)	Album
Don Meers	Artist	Meredith Brooks (E)	Single
<b>Studios 301</b> Jacqui Espie Tel: (02) 9211 7301.			
Suzi De Marchi	Nuno Bettencourt	Don Bartley	Single
Custard	Magoo	Steve Smart	Album
Spiderbait	Phillip McKellar	Don Bartley	Album
Cold Chisel	Band	Don Bartley	Single
Primary	Nick Launay	Steve Smart	Album
Cherry	Michael Szumowski	Don Bartley	Single
<b>Top Cat Recording Studio</b> Brad Wann Tel: (02) 6628 0843. 24 Track Analogue 1" & Digital, Mastering			
Dave Thirgood & Lost For Words	Brad Wann/Dave Thirgood	Brad Wann (E)	EP Tracking/Mix/Mastering
Six Seconds Slower	Brad Wann	Brad Wann (E)	EP Tracking/Mixing
Peter Kennedy	Artist	Brad Wann (E)	Demo EP
Tokyo Joe	Brad Wann/Chilli	Brad Wann (E)	EP Tracking/Mix/Mastering
John Allen	Brad Wann/Artist	Brad Wann (E)	Pre-Production - Capital Records
<b>Trackdown Digital</b> Simon Leadley Tel: (02) 9550 6890. Music/Post/Recording			
Play School	Max	Simon Leadley (E)	Album
Dumb Bunnies	Yoram Gross/Nelvana	Torei Lista (E)	Audio Post Production
High Five	Chris Harriot	Simon Leadley (E)	TV/Live Action-Post
Flipper	Yoram Gross	Tim Ryan (E)	TV Audio Post
Allniters		Tim Ryan (E)	EP - Tracking
<b>Troy Horse</b> Mickey Levis Tel: (02) 9319 1799. 24 Track			
Eskimo Joe	Stuart McGill	Mark Worrall	Album
Big Wally	Sluggar	Mark Worrall	EP

>continued over the next page

# SOUND REINFORCEMENT

## Distribution Amp/Headphone Amp

SR-606 Splitter/Mixer/Buffer amp  
SR-460H 6 Channel Studio Headphone Amplifier



## Constant Q Graphic EQ's

SF-213Q Dual Ch.31 band  
SF-231QX Dual Ch.31 band  
SF-430QX Dual Ch.15 band  
SF-431QX Mono 31 band  
SF-330Q Dual Ch.15 band  
SF-330QX Dual Ch.15 band  
SF-331QX Mono 31 band



## Multi FX/Vocal Processors

SR-D3 Digital/Stereo multi FX processor  
SR-D3 Digital 4 in 4 out dual stereo multi FX processor  
SR-D12 Digital Delay/Sampler  
VOC-FX Digital Vocal FX processor  
VOC-TEC Performing vocalist multi FX unit



## Signal Processors

SF-400D 2 Ch. Digital room delay processor  
SF-866 Dual Ch. Stereo gated compressor/limiter  
SF-RTA 31 Band Real Time Analyser

## Active Crossovers

SF-835 18 dB/octave  
SF-823 24 dB/octave  
SF-834 24 dB/octave

## Interface Devices

DP-210 Cable tester  
DP-240 Resistance Mixer  
DP-260 Passive direct box  
DP-265 Stagehand direct box  
DP-275 Active direct box



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A Harman International Company



# How to do it

## TOM MISNER'S PRACTICAL STUDIO TECHNIQUES

### - PRACTICAL EQUALISATION (Part 12)

#### Vocal Equalization

Equalization of vocals requires special considerations. The vocals have a frequency range from 40 Hz to 16 kHz, however, only a small part of that range is responsible for clarity and intelligibility. Vocal sounds can be divided into three main areas: fundamentals, vowels and consonants.

Speech fundamentals occur between 125 Hz and 250 Hz. Male fundamentals occur at around 125 Hz; female fundamentals occur at around 250 Hz. The fundamental region is important as it adds richness and fullness to the sound of a person's voice.

Vowels essentially contain the maximum energy and power of the voice, occurring over the range 350 Hz to 2 kHz. Consonants occur over the range of 1.5 kHz to 4 kHz and contain little energy, but they are essential to intelligibility.

The frequency range from 63 Hz to 500 Hz carries 60% of the voice's power, yet it contributes only 5% to the intelligibility. The 500 Hz to 1 kHz region represents 35% of the voice's power and contributes 35% intelligibility. The range from 1 kHz to 8 kHz produces just 5% of the power but 60% of the intelligibility.

It is important to note that each voice is different and time must be spent on finding the most suitable equalization. During our courses at the School of Audio Engineering all other instruments and their equalization are discussed in more detail. The following are some tips for equalizing vocals:

1) By rolling off the lower frequencies and accentuating the range from 1 kHz to 5 kHz, the intelligibility and clarity of speech can be improved.

2) Boosting the low frequencies, from 100 Hz to 250 Hz, makes speech sound boomy or chesty. A cut in the 150 Hz to 500 Hz region will make it boxy, hollow or tubelike.

3) Cutting 500 Hz to 1 kHz produce hardness whilst peaks around 1 kHz and 3 kHz produce a metallic nasal quality. Dips around 2 kHz to 5 kHz reduce intelligibility and make speech sound woolly and lifeless.

4) Peaks in the 5 kHz to 10 kHz band produce sibilance.

#### FILTERS

Filters are normally used to clean up a sound by removing all signals above or below a specified frequency known as the cut-off frequency.

The cut-off frequency of a filter is defined as the point at which the signal level has dropped off by 3 dB. Beyond this point the level falls at a steady rate determined by the slope of the filter, which is measured in dB per octave. EG: a high-pass filter may have a 6 dB/octave slope, meaning the signal's amplitude is reduced by 6 dB for every octave below the cut-off frequency.

Careful use of filters allows the engineer to control the overall useable bandwidth of a sound.

#### High-Pass Filter (HP)

High-pass filters remove all sounds below the cut-off frequency and pass all sounds above it, hence the name 'high-pass'.

Although instruments are capable of creating frequencies as low as 16 Hz, in today's modern recording applications we do not need to record frequencies below 40 Hz (with the exception of classical music). The frequencies between 16 Hz and 40 Hz have no important tonal quality and carry no directional information. They will be difficult to record onto analog tape, due to the excessive amount of energy. For all these reasons, it is advisable to roll off very low frequencies during recording. This gives us the benefit of being able to record a higher level to tape, thus reducing the amount of tape noise. HP filters can totally eliminate rumble frequencies.

#### Low-Pass Filter (LP)

A low-pass filter is the opposite to a high-pass filter, filtering out signals above the cut-off frequency and passing signals below it.

It is not necessary for all recorded audio signals to have a frequency response extending up to 20 kHz, as most instruments produce no useable frequency information much above 14 kHz (other than noise). With the correct setting of a low-pass filter we can eliminate the noise component of an audio signal - provided that this component is all in the upper frequencies.

High-pass and low-pass filters are found in studio mixing consoles. In some consoles the filters are preset, while in most professional consoles they are adjustable.

#### Band Pass Filter

A band pass filter allows a restricted band of frequencies to pass through it, and can be created using a combination of high-pass and low-pass filters. In its practical application the band pass filter should be used, prior to all other equalization, to clean up an audio signal. Band Pass filters can also be used to create a very restricted frequency response, good for simulating telephone voices or to recreate the sound of historical recordings. If a console features adjustable HP and LP filters, the engineer can create a band pass filter.

#### Presence Filter

The presence filter allows the engineer to modify frequencies within the ear's region of greatest sensitivity, from 2 kHz to 4 kHz. It is used to increase speech intelligibility or to 'lift' an instrument out of the background music. The typical presence filter has 5 preset frequencies within the 2 kHz to 4 kHz range, and a maximum boost (note: boost only) of 6 dB. The unit is an outboard device inserted across the applicable audio channel, and is usually found in television audio and broadcast studios. In recording studios there are usually enough equalizers to do the same task.

#### Notch Filter

Notch filters are designed to cut out a single or several single unwanted frequencies. They are generally used to eliminate low frequency hum or buzz signals. The notch filter has a very narrow bandwidth, thereby not affecting any of the adjacent frequencies. It is used primarily for specific problem frequencies occurring in the system i.e. earth loops.

#### Conclusion

Our ears tend to react more to boosted sounds rather than cut sounds. The most effective way to use equalization is to choose the frequency and first apply maximum boost, then slowly cut back to reach the desired amount of boost or cut. Using an equalizer to boost all frequencies will only produce an overall level increase, not a change of sound. It may be necessary to cut a particular group of frequencies in order to give the impression that others have been boosted.

The engineer should always consider the final use of the material. If the product is to be used on television there is no need to concern yourself with frequencies above 12 kHz. Since we don't always know the ultimate use of the recording, monitoring on a selection of speakers, at various levels, is always advisable.

This is extracted from the top selling book: PRACTICAL STUDIO TECHNIQUES, by Tom Misner. ©Tom Misner 1988. ISBN0 646 16704 9. Retail: \$40.00. Available from book stores and music shops everywhere, also through the Connections Shop, call 1800 635 514. Tom Misner is the owner of SAE International.

# BASF NATIONAL TRACKING GUIDE

# BASF

ARTIST PRODUCER ENGINEER/PROGRAMMER NOTES

(continued from previous page)

Soundevents	Peter Kennard	Colin Wright	Australia Day Spectacular
Frank Yamma	Guggisberg/Artist	Dave Trump	EP
Young Liberals In Love	John Biggins	Mickey Levis	ABC Promos/Soundtrack
<b>Velvet Sound Recording Studios</b>	Dave McCunn Tel: (02) 9283 5968. Automated 32Ch 24 Trk 2 inch		
Belle's Pocket	Craig Portells	Craig Portells (E, PR)	Album Tracking
Via Satellite	Band	Jorden Bach (E)	EP Tracking
Waldo Fabian	W. Garrido	Frank Keresteshjian	Mixing Singles
Henry's Anger	Band/Adrian Grigorieff	Adrian Grigorieff (E)	Album Tracking
James Blundell	Artist	Greg Harris (E)	Album Tracking
<b>Wirra Wirra Studios</b>	Will Rout Tel: (02) 9605 1203. 24 Track Analogue, 16 Track Digital, Mastering & Post		
Rock @ Roll Dance	Dennis Klumpp	Will Rout (E)	Dance Video (Post)
Fab Manzini	Artist	Will Rout (E)	Album Tracks
Bobby Silk	Tony Martin	Will Rout/Ian Cooper (E)	Album
Gail Sweeny	Tony Martin/Artist	Will Rout/Ian Cooper (E)	Album
"I-Net News"	David Williams	Will Rout (E)	TV Pilot & Sci Fi Post

## Queensland

<b>Grevillea Studios</b>	Bruce Tel: (07) 3262 8422.		
Jeff Usher	Paul Cheeseman	Paul Cheeseman	Album
Vicky O'Keefe	Bruce Jacobson	Bruce Jacobson	Album/Mastering
Strictly Vocal	Roy Daniels	Bruce Jacobson	Album/Mastering
Gerry Ostrowski	Artist	Bruce Jacobson	Album/Mastering
Wide Blue Yonder	Band	Matt Bodman	Demo
<b>T.A.P. Duncan Wood</b>	Tel: (07) 5479 2277. 48 Track Digital ADAT & Hard Disk Drive		
Umbr Embraced	Duncan Wood	Duncan Wood	Album Mixes
T.A.P. Team	Duncan Wood	Duncan Wood	Album
T.A.P. Team	Duncan Wood/Barrie Morrison	Duncan Wood	Betta Electrical Campaign

## South Australia

<b>ATD Master Suite</b>	AI Sankauskas Tel: (08) 8212 7111. CD Mastering Facility		
SA Police Band	Adam/Al/David	AI Sankauskas	CD & Tape Release
SA Public Schools	Rosemary/Al	AI Sankauskas	CD & Tape Release
P.S.S.O.	Roland/Al	AI Sankauskas	CD Release
On Track	Brian/Al	AI Sankauskas	CD Release
Jose Duran	Artist/Al	AI Sankauskas	CD Release
Pride of South Australia	Andrew/Al	AI Sankauskas	CD Release
<b>Disk-Edits</b>	Belinda Kent Tel: (08) 8340 1377. Mastering Studio		
The Gels	Band/Jeff Stephens	Neville Clark	Mastering/Album
Orson	Band	Neville Clark	Mastering/Album
Element	Band/Mick Wordley	Neville Clark	Mastering/Album
Celtic Soup	Band/Neville Clark	Neville Clark	Mastering/Album
Planet Square	Band/Neville Clark	Neville Clark	Mastering/Album
<b>Mixmasters Productions</b>	Mick Wordley Tel: (08) 8278 8506. 24 Track 2"		
Flat Stanley	Wayne Connolly	Wayne Connolly	Mix
Wrench	Paul McKercher	Paul McKercher	Album
The Superjesus	C. Tennant	Les Karski	Pre-Production
Billy February	Les Karski	Les Karski	Album
Anomaly	Mick Wordley	Mick Wordley	Mix

## Victoria

<b>Crystal Mastering</b>	John Ruberto Tel: (03) 9326 2318. CD Mastering		
The Detonators	R. Dillon/Band	John Ruberto	Mastering Album
Ill Manor	M. Rachelle	Joe Carra	Mastering EP
The Mojos	R. Dillon/Band	John Ruberto	Mastering Album
Mongolian Fish Mongers	A. Bourke/Band	Joe Carra	Mastering Album
Unity Hall	Band	John Ruberto	Mastering Single
<b>Dex Mastering</b>	Adam Dempsey Tel: (03) 9372 2266. High End CD Mastering and Restoration Specialists		
Wonder Paints	Band	Adam Dempsey (E)	Album
Jellybugs	Band	Adam Dempsey (E)	Album
THC	Band	Adam Dempsey (E)	EP
Colin Dix	Artist	Adam Dempsey (E)	Album
Billy Hyde	Band	Adam Dempsey (E)	LP Mastering
<b>Metropolis Audio</b>	Toni Wright Tel: (03) 9696 2111. Recording Studios		
Tina Martyn	Clive Young	Matt Thomas (E)	Album
Rey Thomas	Clive Young	Matt Thomas (E)	Album
The Main Event	Ross Fraser	Doug Brady (E)	Album/TV Special
Mushroom 25th Concert	Mark Opitz	Matt Thomas (E)	Album/TV Special
<b>Pepperland Studios</b>	Steve Crane Tel: (03) 5222 6330. 1" 16 Track Analogue		
Release	Steve Crane/Band	Steve Crane	Demo
Moove	Steve Crane/Band	Steve Crane	Album
The Plenty	Band	Steve Crane	Single
The Fun Stoppers	Band	Steve Crane	Album Tracking
<b>Petrophonic Productions</b>	Petros Georgiades Tel: (03) 9553 0176. MIDI Suite/Recording Studio		
Wayne Berry	Petros Georgiades	Petros Georgiades (E)	Business Seminar Tapes
Dr Jan Hall	Petros Georgiades	Petros Georgiades (E, PR)	Sex Education Tapes
Glen Craven	Petros Georgiades	Petros Georgiades (E, PR)	Solo CD
Peter Dene	Petros Georgiades	Petros Georgiades (E, PR)	Demos
Chris Walker	Petros Georgiades	Petros Georgiades (E)	Solo CD
<b>Studio 52</b>	Paul Higgins Tel: (03) 9417 7707.		
Studio A: 32 Track Automated	Studio B: 24 Trk Automated ADAT XT		
Mark Collis	Artist	Andrew Meakes	CD Album
The Model 98	Inoke Veamatahau	Glenn Poulter/Andrew Meakes	CD
Kim Lawford	Trevor Carter	Trevor Carter	Demos/Pre Production
Jaymz Phillips & Hinge		Andrew Meakes	Pre-Production Demos
Frank Lagrosso		Andrew Meakes	Pre-Production Demos
<b>The Ranch</b>	Norman Tel: (03) 5712 0136. The works!		
Footscray/Yarraville City Band	Norman James	Norman James	Anthology CDs

>continued over the next page

# Really BIG NEWS FROM EARTHWORKS & CAD MICROPHONES

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(Earthworks)



**SR71 Studio Quality Cardioid for Live Sound** PRO DIRECT \$600+TAX



**QTC1 Classically Quiet Extra HOT Omni** PRO DIRECT \$1200+TAX



**SR77 Exceptional Sounding Studio Cardioid** PRO DIRECT \$900+TAX



**TC30K Multi-Purpose Omni for Louder Music** PRO DIRECT \$800+TAX

(CAD) Professional Microphones



## NEW VX2

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# BASF NATIONAL TRACKING GUIDE

ARTIST PRODUCER ENGINEER/PROGRAMMER NOTES

*(continued from previous page)*

Ted Bardoe & Gus Mercurio	Norman James	Norman James	"The Red Kangaroo"
Tony Leonard	Norman James	Norman James	"Harry Bouncing Tram"
Various	Norman James	Norman James	"Australian Music Abroad"
Various	Norman James	Norman James	"Walk Against Want"
<b>True Form Music Services</b>	Neil Gray Tel: 0500 509 509	24 Track Digital, 12 Track Analogue and Hard Disk	
Vanity Unit	Neil Gray/Band	Neil Gray (E)	Demo
Zim	Glenn Lewis	Glenn Lewis/Artist (PR)	Single
Hinge	Ross O'Driscoll/Band	Ross O'Driscoll (E)	EP
Soda Racer	Ross O'Driscoll/Mark Welsh	Ross O'Driscoll (E)	EP
Y2K	Neil Gray/Band	Neil Gray (E)	Single
<b>Wombat Rd. Recording Studio</b>	Barrie Clissold Tel: (03) 5145 4204	Full Digital Mastering	
Jill Meehan	Barrie Clissold/Artist	Barrie Clissold (E)	Demo Tracks
HASTE	Barrie Clissold/Band	Barrie Clissold (E)	Album Tracking
INDUSTRIAL DEAFNESS	Barrie Clissold/Band	Barrie Clissold (E)	CD Tracking
Pat Higgs	Artist	Barrie Clissold (E, PR)	Demo Tracks

### Western Australia

<b>Bonsai Recording Studio</b>	Tom Thorpe Tel: (08) 9246 4408	Pro Tools Digital	
Next Of Kin	Tom Thorpe	Tom Thorpe (E, PR)	Album
Joob	Tom Thorpe	Tom Thorpe (E)	Demo
John Meyer	Tom Thorpe/Artist	Tom Thorpe (E)	Album
Matt Williams	Tom Thorpe	Tom Thorpe (E)	Demo
The 2-Ins	Tom Thorpe	Tom Thorpe (E, PR)	Demo
<b>Poons Head</b>	Rob/Sam/Bush Tel: (08) 9339 4791	Music Recording/Mastering/32 Track+	
Mission Blue	Rob Grant	Rob Grant (E)	Album
Dom Mariani	Artist	Rob Grant (E)	Single
Spank	Rob Grant	Rob Grant (E)	Single
Black Market Band	Don Morrison	Rob Grant (E)	Mastering
<b>Satellite Recording Studio</b>	Darren Halifax Tel: (08) 9470 4003 Fax: (08) 9472 8040	ProTools	
Zydecats	Lucky Oceans	James Hewgill	Album
Billie Reid	Darren Halifax	James Hewgill	Album
Atlas	Band	Darren Halifax	EP
Silent Type	Martin Weibel	Martin Weibel	EP
David Hymes	Artist	Darren Halifax/James Hewgill	Album

ARTIST PRODUCER ENGINEER/PROGRAMMER NOTES

<b>Witzend Recording Studio</b>	Alan Dawson Tel: (08) 9331 1818	16/24 Track Automated	
Peter McGrandle	Alan Dawson	Alan Dawson	Album
Michael Pratt	Alan Dawson	Alan Dawson	Album
Taxi Cathedral	Alan Dawson	Alan Dawson	Demo
The Panics	Alan Dawson	Alan Dawson	Demo
Blue Rinse Ensemble	Jeff Harrold	Alan Dawson	Pre-Production
Black Bean	Alan Dawson	Alan Dawson	Demo

### Northern Territory

<b>Masters Studio &amp; Production</b>	Lindsay Masters Tel: (08) 8932 1754	8 Track Digital & VST.	
The Sublimes	Lindsay Masters	Lindsay Masters	Album
Marc Smith	Artist	Lindsay Masters	Album

### YOUR BASF TRADE SALE OUTLETS:

NSW:	Audio Visual Designs (02) 9281-2444
	Silver & Ballard (02) 9439-5355
	Independent Tape Services (02) 9436-0666
VIC:	CATS (03) 9529-3177
	Chapple Tape (03) 9580-6620
	DEX Audio (03) 9372-2266
	MTA & Assoc. (03) 9819-6455
SA:	Adelaide Tape Duplicators (08) 8212-7111
	Pro Media (08) 8276-6793
WA	Ausmag (09)314-1953
	Pro Copy (09)375-3302
QLD:	Musiclab (07) 3862-1633
	Tek (07) 3239-4000



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# Panasonic

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### Features:

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# Amphenol

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## Audio Connectors

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## GA Series Mixers - The New Concept In Live Mixing

The GA mixer stands for Group / Aux Diversity, or put another way, YOU can decide how many groups or auxiliaries are required for the job on hand. The GA mixer is a 12 bus design that allows 4 busses to "float" between auxiliaries or groups as required.

A GA Mixer may be configured 4 Group 6 Aux + Stereo OR 10 Aux + Stereo or anything in between - You decide!!!

### GA SERIES MIXER FEATURE

- ◆ Patented ultra quiet Yamaha mic pre-amps (XLR Balanced) with 48V phantom power
- ◆ 4 Band EQ with TWQ swept mid bands
- ◆ Channels feature pad, phase, high pass filter, PFL & peak indicator
- ◆ Groups feature 3 band EQ (mid swept) & AFL
- ◆ 4 stereo returns are provided plus tape in
- ◆ Comprehensive mix matrix
- ◆ Centre master section with talkback, metering & group /aux assignment
- ◆ 2 stereo channels included
- ◆ 24 or 32 channels configurations



**24 channel \$5,295**  
**32 channel \$6,295**



For more details contact Yamaha Music on 1800 805 413



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# Radio Microphones

(Sub-titled "How Did I Get Stuck With This Job!")

One of my first gigs as a professional technician was doing radios for "Oliver!" the musical, back in 1983. I can tell you, things have changed a lot since then! We had a grand total of eight radios on the show, a big rig in those days. Three were Sony studio types at UHF 900Mhz, three were Microns at VHF 200Mhz and two were Beyers on HF 27Mhz. None had diversity receivers and it was quite an accomplishment to have a full complement working at any one time!

I remember being screamed at by a diva, who shall remain nameless because she's very much bigger than I am, after the fourth \$400 brand-new-out-of-a-box microphone capsule failed within thirty minutes of me fitting it to her. I nearly lost an arm down the cleavage of the same lady retrieving a wayward capsule (successfully) moments before she made a stage entrance.

Back then there were a total of sixteen "legal" frequencies available; four at 27Mhz, which suffered terribly from electrical and radio interference of all kinds, four at 200Mhz with frequencies that only allowed three to work together simultaneously. And then there were Sony's eight "Group A" UHF channels, but *nobody* could afford eight Sonys. In today's money a Sony diversity system cost around \$60,000 per channel. And acquiring them was like having children...it took at least nine months after you first wanted them before they finally arrived! And I'm sure we were just as excited about our first Sonys as most people are about their first child. (I know, we soundies are a sad lot!)

Today, the Spectrum Management Agency has decreed that radio microphones are "low interference potential devices". Transmitting about three thousandths of one watt, they are unlikely to interfere with a distant TV viewer watching their local TV station transmitting at fifty thousand watts. We are graciously allowed to use TV frequencies for radio microphones, provided they are not used in the broadcast region of a TV station with the same frequency (really!). Of course there is no protection from interference from other sources, and we must not cause interference, but it's the best deal we're going to get.

Each television channel has about 8Mhz of bandwidth available, into which fourteen or so radio channels can readily be accommodated. With dozens of unused TV channels around, there's almost no limit to the numbers of radio microphone channels that can be used, but for one big word, inter-modulation. (See separate item.)

Apart from the radio issues of getting radio microphones to work, the audio side of things is fairly trivial. You don't need to spend megabucks to get a good sounding system. Of course, the quality of the microphone capsule is important; you can't skimp on that.

Quality systems are no longer expensive, for example Shure's new UT series retails at less than \$1,600 per channel. For small systems of up to eight channels you'd be hard pressed to beat the performance/price ratio on these.

For very large high performance multi-channel systems, Sennheiser and Sony systems are still preferred due to their superior inter-modulation immunity and channel numbers



*I learned a lot of tricks in those early years, and every one of them was essential to keep the radios going. Sometimes I think that today's diversity and noise reduction systems have made radios so easy to use that we rarely get the best performance out of them; we've become lazy about everything that counts. I could write a page on why each of these tips is important.*

*Ignore these at your peril!*

## Interference

Higher frequencies suffer less interference. UHF should be static free; HF (27Mhz) is a waste of time. Electrical interference is worse in lower frequency bands

Neon lighting can cause buzz. Make sure high voltage feed wires have *earthed* fully braided screens and use UHF frequencies.

Use wooden or plastic brackets to mount receiving antennas and wrap coax connectors with insulation tape to prevent electrical contact with metal objects, to prevent clicks, buzz, static and distortion.

Keep transmitter antenna away from metal including zips and metallised plastic braiding in costumes, and chains, eg fob watches, to prevent crackles and static. If possible get wardrobe to use plastic zips, not metal ones.

## Receiving Antennas

If you have a diversity system, the signal should spend roughly equal amounts of time on both A and B receivers, and ideally a

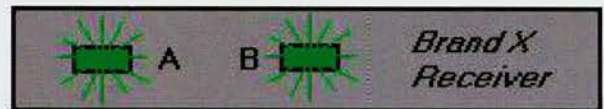


Figure 1: Diversity receiver indicators

available. This extra performance comes at a very high price, around \$10-15k + per channel. Despite the high prices of these top flight systems you'll still need to follow all of my tips for flawless performance!

# buyers guide::

## WIRELESS MICROPHONES

Prices INCLUDE sales tax and were correct on 15th February 1999. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

### UHF MIC & SYSTEMS

#### AUDIO LTD

**Audio Sound Centre (02) 9901 4455**  
**RMS 2020** pocket diversity receiver with 16 channels, choice of pocket transmitter or HX2000 shotgun style transmitter with Schoeps capsules. \$9150.

**RMS 2000** UHF pocket non diversity, two channel portable wireless system, suit ENG and mobile applications. \$6710.

#### AUDIO TECHNICA

**Yamaha Music Australia (03) 9693 5111**

**AT 1900 SERIES UHF WIRELESS (NEW)** True diversity system offers choice of handheld, or Body-pack transmitters suitable for guitar or headset microphone, balanced and unbalanced outputs, 100Hz-15kHz, rack mountable. \$T.B.A.

#### BEYERDYNAMIC

**Syncrotech (02) 9879 0800**

**U400P** bodypack with MCE50 lapel microphone. Receiver is 1RU, half width. All components feature multi-functional display 32 channels (798 - 822MHz). \$3770.

**U400G** guitar system with bodypack. 1RU receiver, half width, as above. \$3499.

**U400HE** handheld cardioid condenser, as above with digitally adjustable gain etc. \$3795.

**U400HD** handheld dynamic microphone with TGX60 hypercardioid pattern with digitally adjustable gain, 1RU, half width, 32 switchable channels, 798-822 MHz.

#### LECTROSONICS

**Audio Sound Centre (02) 9901 4455**

**UCR 2006** compact receive suit camera mount, diversity 256 channel, available with belt pack transmitter, plug on transmitter or dedicated hand held transmitter. \$9150.

**UDR 2006** half rack receiver with choice of transmitters, 256 channel with built in spectrum analyser via PC to assist channel selection between venues. \$12,480.

#### MIPRO

**Audio Telex Communications (02) 9647 1411**

**MR801** Single channel, half rack, UHF true diversity receiver with choice of electret condenser hand held or belt pack transmitters. Features Pilotone and Noiselock Squelch system to prevent interference. Full range of accessories in-

cluding antenna dividers, boosters etc also available. \$1131.

**MR588** 30 Frequency, half rack, UHF true diversity receiver with choice of electret condenser hand held or belt pack transmitters. Receiver includes 30 selectable frequencies on transmitters and receiver. Features Pilotone and Noiselock Squelch system to prevent interference. Full range of accessories including antenna dividers, boosters etc also available. \$1567.

**MR812** 30 Frequency, full rack, UHF true diversity receiver with choice of electret condenser hand held or belt pack transmitters ensuring a fresh supply of batteries is a ways available (batteries supplied). Includes 30 selectable frequencies on transmitters and receiver. Features Pilotone and Noiselock Squelch system to prevent interference. Full range of accessories including antenna dividers, boosters etc also available. \$1859.

**MR822** Dual Channel, 30 Frequency, full rack, UHF true diversity receiver with choice of electret condenser hand held or belt pack transmitters. Each channel has its own 30 channel selectable receiver. Price includes two transmitters. Receiver is metal chassis with internal power supply and unique built-in transmitter battery charger. Will charge 2 transmitter batteries ensuring a fresh supply of batteries is always available (batteries supplied). Includes 30 selectable frequencies on transmitters and receiver. Features Pilotone and Noiselock Squelch system to prevent interference. Full range of accessories including antenna dividers, boosters etc also available. \$3331.86.

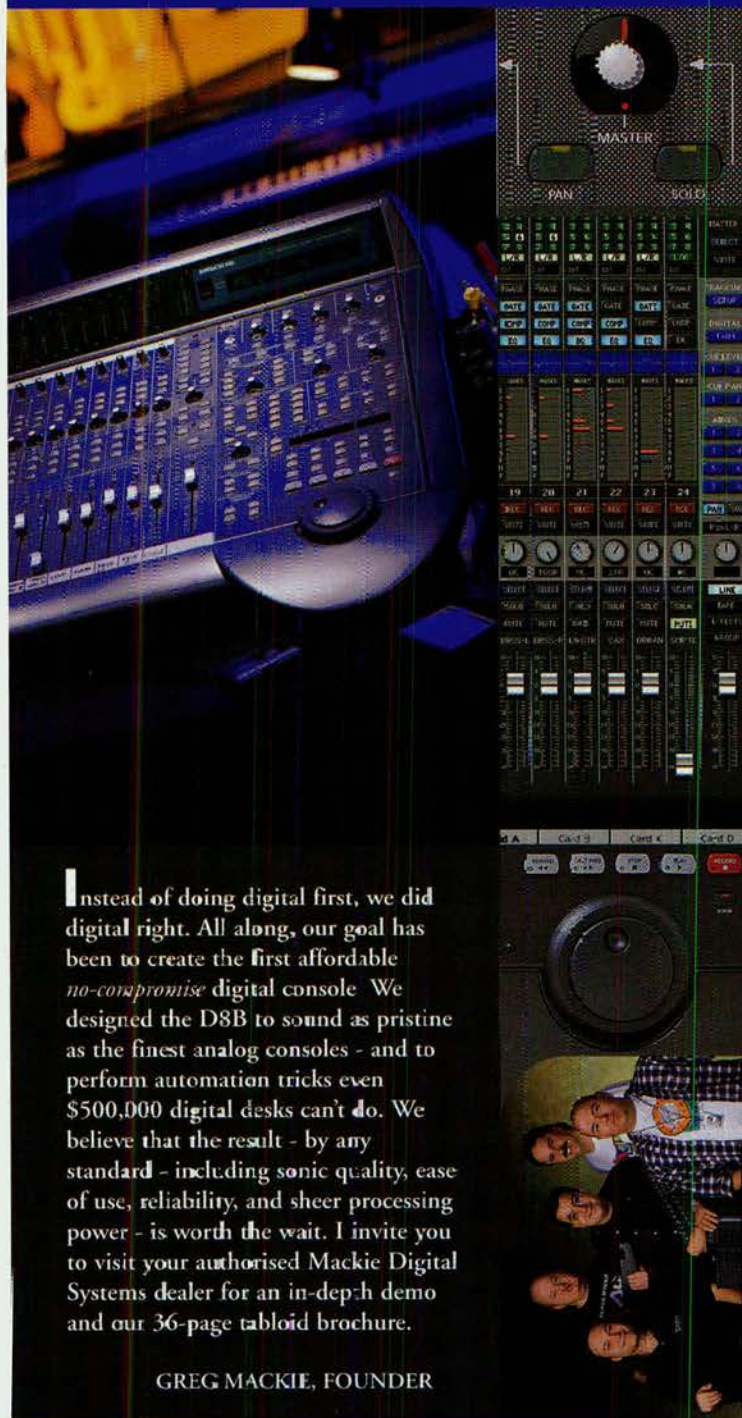
#### SAMSON

**The Electric Factory (03) 9480 5988**

**UHF Series 1 systems** True diversity, half RU systems. Receiver - 3 segment RF meter, AF peak LED, squelch control, rear panel XLR and 6.5mm outputs plus line/mic output level switch. Inserts include Shure, Samson, AT, Sony, EV. Beltpack/Lavalier, Headset, Handheld and Instrument systems available. From \$1,099.

>continued next page

# TOTAL CONTROL. TOTAL CREATIVITY. THE MACKIE DIGITAL 8-BUS IS HERE



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lot of time on A and B together. If not, one or both of your receiving antennas are faulty or poorly sited.

Never assume that both receiver antennas in diversity systems are working properly. Disconnect each antenna in turn at the input to the receiver and "walk test" the transmitter through the whole performance area. If it doesn't work properly on each antenna separately, fix the problem or you're headed for trouble.

For a large performance area, site receiver antennas on opposite sides to ensure you always have one strong signal.

Try to position antennas with line-of-sight to transmitters. Particularly avoid having metal structures between units.

Tilting the receiving antenna off vertical will help prevent dropouts caused by standing waves.

## TOP Tips

For maximum antenna signal, keep antennas clear of other metal objects by at least the length of the antenna's elements.

Low loss cable is essential for UHF antenna cable extensions, but not for VHF except for long runs, eg cross stage.

Use only crimp style connectors of the correct type for antenna leads for reliable operation.

And use 50 antenna cable, not 75 television coax, or you will lose signal at every cable junction because of impedance mismatch.

Antenna distribution systems work well, but make sure that the distributor has unity gain if using receivers designed for "on unit" ariels. Excessive gain will overload the input causing interference.

## Testing

If possible, turn off noise reduction systems whilst "walk testing" transmitters. The noise reduction system masks dropout problems, which is what it is supposed to do, but it doesn't help you find the best locations for receiving antennas. If you can't turn it off, hum into the microphone. Listen for swishes and splats; if you've done your job properly, you won't get any.

Test every transmitter on stage before every performance. Don't turn them off after testing unless you plan to test them again.

Don't use kid gloves when testing transmitters – they have to stand up to the worst treatment during a performance. It is better they break before the performance, not during it. Yank all leads, wiggle all connectors, bang all cases and have all transmitters on together.

Tape or cover all controls to prevent "helpful" performers bugging things up!

## Batteries

Use only brand name alkaline batteries.

Test battery voltage in situ with a digital voltmeter and with transmitter "on" before and after it has run for fifteen minutes. If the voltage has dropped by more than a small amount you have a dud battery or a dud transmitter.

Use rehearsals to test ultimate battery life. You may

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# buyers guide::

## WIRELESS MICROPHONES

Prices INCLUDE sales tax and were correct on 15th February 1999. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

### Samson, continued

**UHF Synth Series Six** Frequency agile, simultaneous operation of up to 96 channels, remote control of receivers via PC; options include active antennas and distribution amplifiers. Inserts include Shure, Sennheisser, Samson, Sony, EV, AT. Beltpack/Lavalier, Headset, Handheld and Instrument systems available. From \$5,199.

### SHURE BROTHERS INC

Jands Electronics (02) 9582 0909

**UT Series (SM58)** Portable diversity receiver; Fixed frequency (choice of 8); Handheld - SM58 or BG3.1 capsule; Beltpack with choice of: Headworn (dynamic or condenser), Instrument WM98, Lapel (choice of 4) or Guitar cable. \$1595.

**UC Series (Beta 58)** 1/2 RU Receiver; Programmable - 10 groups of 16 frequencies; Handheld - Beta 87, Beta58 SM87 or SM58 capsule; Beltpack options same as UT series; Tone Key Squelch; Variable HF and LF; Low Battery indicator on Tx and Rx. \$3795.

**U Series (Dual 2 x Beta 87)** 1 RU 2 channel Receiver; Programmable - over 200 frequencies; Handheld - Beta 87, Beta58 SM87 or SM58 capsule; Beltpack options same as UT series; Tone Key Squelch; Low Battery indicator on Tx and Rx; Computer interface for remote monitoring and scanning. \$10,985 (dual system).

### SONY

Sony Australia 9887 6666

Sony Australia Limited has two UHF ranges (operating on UHF Ch 66/67).

**FREEDOM** series is a cost-effective range for hand-held speech, lavalier and guitar applications. "FLASH" - available shortly a new FREEDOM series vocalist dynamic hand-held based on the F780 (wired vocalist). WRT-805A/66 - Body Pack Transmitter, optional Lavalier, Headset or Guitar cable \$607. WRT-800A/66 - Hand Held Transmitter \$656. WRR-800A/66 - Diversity Receiver Unit \$959. WRR-801A/66 - Diversity Base Receiver Unit inc, 1 x WRU801A/66 Tuner unit \$1,590.

**BC** series offers features used mainly by television broadcasters such as a slot-in receiver for Betacam SX and remote station battery indication. WRT-810A(66) - Uni-Dynamic, Hand Held \$1,648. WRT-820A(66) - Body Pack Trans-

mitter \$1,451. WRT-830A(66) - Uni-Electret, Handheld \$2,131. WRT-860A(66) - Body Pack Transmitter (Broadcast) \$2,680.

### VEGA

EV1 Audio Australia (02) 9648 3455

**U 2020** diversity frequency agile system with 100 frequencies available. Half rack receiver, balanced out on XLR, AF/RF/Div metering. Four channel antenna/power splitter available. Belt pack Tx available for headset/lapel/guitar operation. Hand held available with EV 557, 267, 767 and 967 capsules available. \$2529.

**672** diversity frequency agile broadcast system. Frequency selection from PC programme. Miniature belt pack available plus hand held transmitters with N/D, RE, SM and Beta capsules. \$8909.

### IN-EAR WIRELESS

### SHURE BROTHERS INC

Jands Electronics (02) 9582 0909

**PSM600** 1/2 RU stereo transmitter; Dual frequency (choice of 10 pairs) available in 600 or 800MHz; Stereo, Mono or MixMode operation; Volume and Pan controls on the beltpack. Inbuilt limiter in the beltpack; optional antenna combiner. \$3495.

**PSM600 with E1 Ear Drivers** As above but with E1 Ear Drivers included. \$3995.

**PSM700** 1/2 RU stereo transmitter; Programmable (2 groups of 16 channels); Stereo, Mono or MixMode operation; Volume and Pan controls on the beltpack. Inbuilt limiter in the beltpack; optional antenna combiner. \$TBA.

**PSM700 with E1 Ear Drivers** As above but with E1 ear drivers included, also available with E5 two way ear drivers. \$TBA.

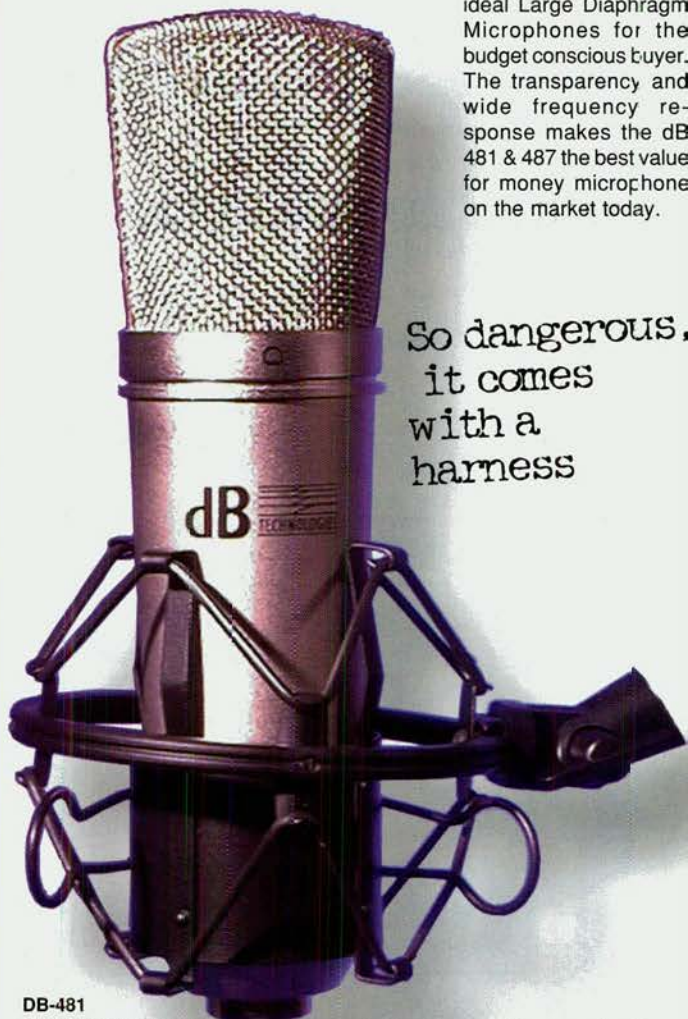
next month::

## SIGNAL PROCESSORS

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# A MIC WITH BITE



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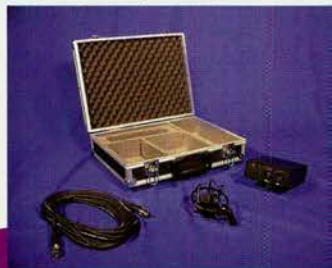
So dangerous, it comes with a harness

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Internal - 6dB at 100Hz  
Bass Cut Switch  
Nickel finish

**DB-487**  
Cardioid polar Pattern  
30 ~ 18,000Hz  
External - 6dB at 100Hz Bass Cut & 10dB Sensitivity Switch  
Nickel or Black finish

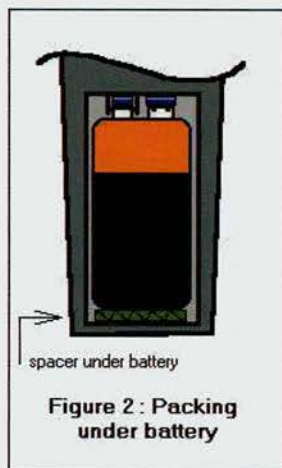
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Free : Harness, power supply, carry case & cable with the purchase of every dB-481 or dB-487 microphone.



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have to change batteries at interval, after every performance or after every second or third performance depending on transmitter and battery type.

Some transmitters do not have power stabilising circuits and performance drops as batteries are used up; see note on batteries above.

Nine-volt batteries vary in length. Short ones may need a spacer to ensure good contact with the battery terminals and to prevent them rattling. Use a piece of cardboard.

## Body-pack Transmitters

Vertical transmitter antennas work better than horizontal ones.

Run antenna cable straight down from the transmitter case. Do not fold back across transmitter. Use a longish rubber band attached to the end of the antenna and pinned to clothing to keep antenna extended without strain.

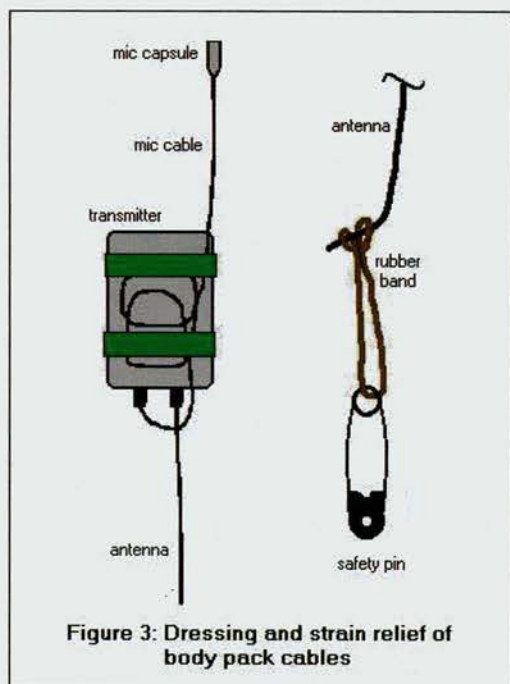


Figure 3: Dressing and strain relief of body pack cables

Sweaty skin reduces transmitted power at UHF. Keep antenna away from skin if possible, eg on outer layers of clothing.

Coil excess microphone cable and tape it to the transmitter case. (NB: Except where the microphone cable is also the antenna.) Run microphone cable away from transmitter in opposite direction to antenna.



## Lapel Microphones

A drop of sweat can seal a capsule, blocking sound. Try to have front of capsule hanging downwards.

Watch out for strands of hair, which can penetrate the microphone mesh and cause crackling.

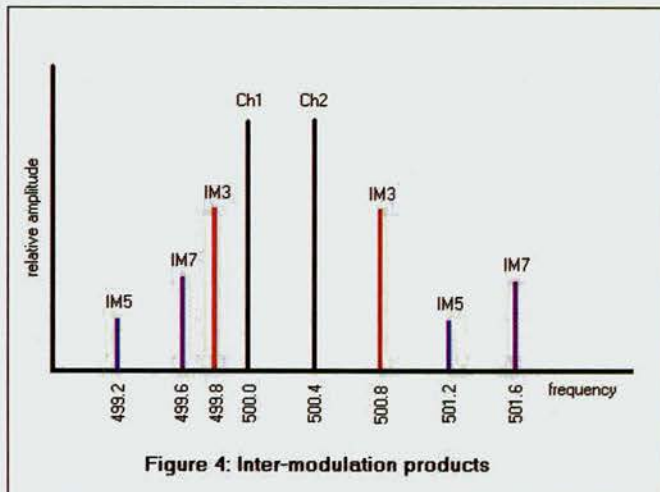


Figure 4: Inter-modulation products

## Adjustments

Read the owner's manual before adjusting squelch levels and gain for optimum performance. Correct squelch adjustment is really important in multi-channel systems.

## Inter-modulation Explained

Mixing two radio frequencies in a non-perfect amplifier causes the generation of distortion components called inter-modulation products. These new junk frequencies occur at the sum and difference of the two original frequencies. It happens at the output stage of transmitters, such as when one transmitter is in close proximity to another and radiates into its output stage, in the input stages of receivers, and in antenna booster amplifiers.

First order sum and difference products ( $f_1 + f_2$ ,  $f_1 - f_2$ ) will not cause a problem unless the difference happens to fall near to 10.7Mhz, which is used as an intermediate frequency in the modulation/demodulation process. For example, don't expect 500.0Mhz and 510.7Mhz to work happily together. Third ( $2f_1 - f_2$ ,  $2f_2 - f_1$ ), fifth ( $3f_1 - 2f_2$ ,  $3f_2 - 2f_1$ ) and seventh ( $4f_1 - 3f_2$ ,  $4f_2 - 3f_1$ ) order inter-mod difference products do cause problems. Higher order inter-mods can usually be ignored.

For example, if we have on transmitter at 500.0Mhz and one at 500.4Mhz, the following inter-mod frequencies will be generated: 499.2, 499.6, 499.8, 500.8, 501.2 and 501.6Mhz. None of these frequencies can be used for additional channels at the same time as 500.0 and 500.4 without risk of interference. So a two-channel system with a nominal 0.4Mhz spacing is already using up 2.4Mhz of bandwidth. In reality a clever frequency allocation will inter-leave additional channels between all these problem frequencies.

Because every combination of frequencies present will generate inter-modulation products, the number goes up exponentially as more channels are added, so that for a 13-channel installation there are already more than 1200 frequencies to be avoided.

There are two things that really differentiate a good radio microphone system from an average one: the quality of filtering in the output stage of the transmitter and the input stages of the receivers; and the linearity of all amplification stages in transmitters, boosters and receivers. Good electronics (usually = more expensive) means more channels can be crammed together with less risk of interference.

John Matheson designs electro-acoustic systems for Bassett Acoustics. Call him on +61 8 8363 1000.

# SHURE®

## Radio Frequency Guide

March 1999 edition ©

Handy pull-out  
reference guide

### Legal Frequency Bands For Australia

With the advent of DTTB, the VHF segment of the broadcast spectrum is being compromised in terms of wireless microphone usage. This guide will help you to identify clear frequencies in which to operate your wireless microphone equipment. This guide details the current situation as of March 1999 but further changes are expected this year. Refer [www.jaids.com.au](http://www.jaids.com.au) for latest information. EC & E



# SHURE®

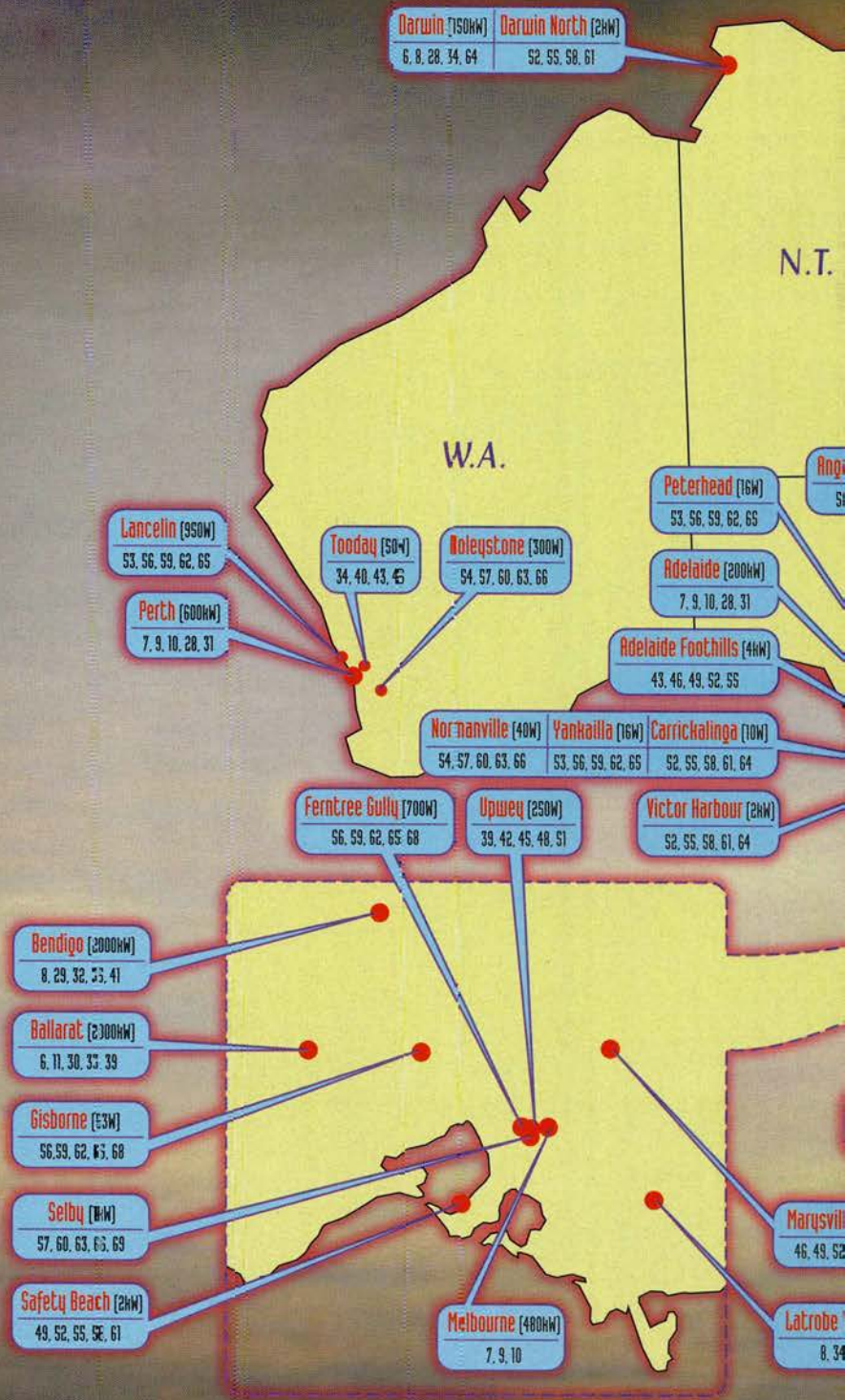
TV Channel	Frequency	TV Channel	Frequency		
<b>VHF Band 3</b>	6	174-181	45	645-652	
	7	181-188	46	652-659	
	8	188-195	47	659-666	
	9	195-202	48	666-673	
	9A	202-208	49	673-680	
	10	208-215	50	680-687	
	11	216-223	51	687-694	
	12	223-230	52	694-701	
	<b>UHF Band 4</b>	27	520-526	53	701-708
		28	526-533	54	708-715
		29	533-540	55	715-722
		30	540-547	56	722-729
31		547-554	57	729-736	
32		554-561	58	736-743	
33		561-568	59	743-750	
34		568-575	60	750-757	
35		575-582	61	757-764	
<b>UHF Band 5</b>		36	582-589	62	764-771
		37	589-596	63	771-778
		38	295-603	64	778-785
		39	603-610	65	785-792
		40	610-617	66	792-799
	41	617-624	67	799-806	
	42	624-631	68	806-813	
	43	631-638	69	813-820	
	44	638-645			

Note: Due to the large number of transmitters in existence many in rural areas have been omitted for clarity.

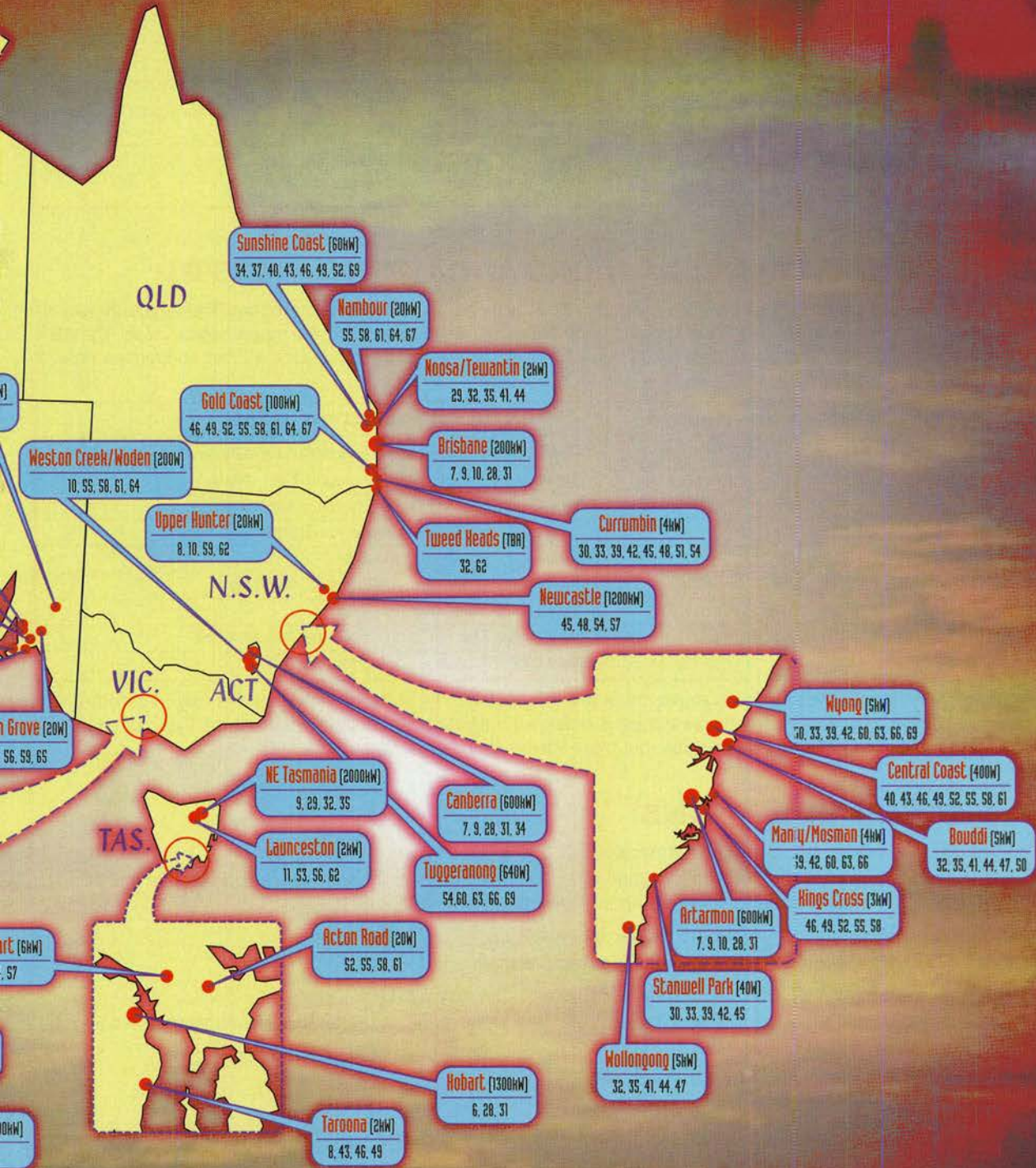
## Legend:

Location(s) [Power]

TV Channels in use



# Radio Frequency Guide



## RELATIVE BENEFITS OF UHF VS VHF WIRELESS MICS

UHF	VHF
Greater spectrum available (520 - 820 MHz a total of 300 MHz of spectrum)	Less spectrum available (174 - 230 MHz a total of 54 MHz of spectrum)
Less competition for a clear frequency	More competition for a clear frequency
Shorter Wavelengths (300 - 500mm) therefore shorter antenna (approx. 75 - 125mm)	Longer Wavelengths (approx. 1.5m) therefore longer antenna (1/4 wave antenna approx. 400mm)
Propagation losses through air and walls are greater	Propagation losses through air and walls are less
Less RF background noise	Greater RF background noise
Higher cost to manufacture	Lower cost to manufacture
Greater risk of dropout from multipath - Diversity receivers essential	Less risk of dropouts from multipath - Diversity receivers desirable, but not essential

## DIGITAL TERRESTRIAL TELEVISION BROADCASTING - (DTTB)

Digital TV is coming to all major capital cities of Australia from 1 January 2001 with testing to commence sooner. The spectrum allocation for DTTB has yet to be finalised. However, the following appears to be the most likely scenario for the major capital cities. The ABA has advised that it expects to publish the final channel plan by 30 June 1999. In rural areas transmissions will not commence until 1 January 2005.

TV CHANNEL	FREQUENCY RANGE (MHZ)	ALLOCATED USAGE
6	174 - 181	New Digital Transmission - Probably Seven Network
7	181 - 188	Seven Network's Existing Analogue Transmission
8	188 - 195	New Digital Transmission - Probably Nine Network
9	195 - 202	Nine Network's Existing Analogue Transmission
9A	202 - 209	New Digital Transmission - TBA
10 (Existing)	208 - 215	Ten Network's Existing Analogue Transmission
10 (Future)	209 - 216	New Digital Transmission - TBA
11	216 - 223	New Digital Transmission - Probably Ten Network
12	223 - 230	New Digital Transmission - Probably ABC

In UHF the situation is more confusing. In Sydney, for example, there are ten Analogue UHF translators - see the map. There may be additional UHF translators for Digital. However, where these will be is unknown until the channel plan is published. Typically, they will be on the adjacent channel to the existing analog transmission, but there will be major exceptions.

## FREQUENTLY ASKED QUESTIONS:

**Do I need a license to operate a wireless microphone in Australia?**

Yes, you always need a license to operate any form of wireless transmitter. However, there is a class license in existence that permits you to operate many types of wireless microphones without making an individual license application.

**Will there be compensation for VHF systems that can no longer be used?**

No. The class license states that users are permitted to transmit in unused channels.

**What will happen if I continue to use my VHF wireless microphone after 1 January 2001?**

This has yet to be fully determined. Limited functionality may be possible over short range, however this would be contravening the class license.

**Can I have my wireless microphones converted from VHF to UHF?**

No. Circuit designs do not permit this.

**There's something wrong with my wireless microphone, the RF LEDs on the receiver light-up even before I turn on the transmitter.**

The probability is that you have a wireless microphone system that is on the same frequency as a TV station (this often occurs with systems purchased overseas). Switch the unit to a different frequency or if the unit is not switchable, take it back to the shop where you bought it and explain the situation to them. They may be able to change the system to one on a different frequency. For this reason you should always buy wireless microphones in the country of use. For example, Jands only distribute wireless microphones that can be successfully used in Australia.

## ADDITIONAL READING:

**Selection and Operation of Wireless Microphone Systems** by Shure Brothers Inc - Available from Jands Electronics (02 9582 0909) or in .pdf form at <http://www.shure.com/booklets/techpubs.html>.

**Radio and Television Broadcasting Stations 1998** is a listing of all existing analog Radio and Television Stations, including those in rural areas, their location and power. It is available from the Commonwealth Government Bookshop or in .pdf form at <http://www.aba.gov.au/what/broplan/plan/sbook98/index.html>.

# Connections

## AV PRESENTATION NEWS

### Projecting the Future of Projection

By Gary Kayye

**It's** finally here. The projector market has finally completed a total transition from the old Analog CRT technology to the new Digital technologies like DLP and LCD.

OK, most of you had already switched.

In the Hire and Staging market, the leading projectors are the Digital Projection DLPs and Barco LightCanon LCDs, but the fact remained that the installation market was still dominated by the CRT.

Well, that all changed in 1998 with the introduction of the Sanyo, Eiki, InFocus and Proxima 'fixed install' projectors offering up to 2000 ANSI lumens, all sorts of lenses and a great picture in data. It looks as if the portable projector manufacturers have finally begun to sneak up on more than the portable market.

But, guess what? It's only beginning.

The traditional CRT manufacturers have recently introduced their own Digital entries into the fixed installation market. Both Sony and Barco are just beginning to ship but already the word is on the street that these boxes are major advances in digital display technologies. Although everyone welcomed the advances made by the Sanyo, Eiki, InFocus and the like, there were still weaknesses with their boxes: video quality and set-up controls.

In the case of the Sony VFL-X2000 and the Barco 6300, these are no longer trade-offs. Both units offer set-up functions similar to that of their CRT cousins (including geometry correction, gain and bias controls, and a heap of lens options) and remarkably good video.

*(please turn the page)*

**VIDEO PROJECTOR  
BUYER'S GUIDE IN  
THIS ISSUE!**

Gary Kayye joins Connections! Gary (right) is Principal of Kayye Consulting, a U.S. based firm in Chapel Hill, N.C. (USA) that specialises in providing marketing consulting and training development to the professional audiovisual industry. He writes for a number of US and European publications as well as teaches projection technology for ICIA at the INFOCOMM shows. In addition, he publishes a free e-mail newsletter for the Pro AV Industry, Knews! You can subscribe to Knews! at <http://www.kayye.com> or at <http://www.knews.net> Contact Gary directly via e-mail: [gary@kayye.com](mailto:gary@kayye.com)



### CIRQUE DU SOLEIL : THE OPENING NIGHT PARTY

Top events transform Fox Studios

**SYDNEY:** At the end of the opening night performance of Cirque Du Soleil's Saltimbanco, VIP's made their way along red carpet towards Fox Studios. Internally lit witches hats, large traffic signals and searchlights led guests to the studio entrance where Canadian Mountees and "puff boy" balloons checked invites. 20 Djembe drummers set the groove for the night. Cloaks were checked in at Mr and

Mrs Ivor's old caravan with the nagging doubt that you would ever see your coat again...

Entrance was through a curtain of light into a mirror maze. The dome in the Byron Kennedy Banquet Hall was lit in purple and from it hung a giant mirror ball.

At each end of the space stood two large fingers of trapeze, one over the dance *(please turn the page)*

**EVENT**



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## tp events

floor, the other over the entrance. The room contained two other diagonal truss structures containing surfboards and flamingoes with tables below offering fun circus food.

A fluoro chequered dance floor seemed to hover under the UV and dance floor lights. Jackie Orszacsky's 16 piece funk orchestra which included a string quartet and eight piece horn section played.

Plastic blow up chairs, surrounded by silver lame, 70's retro-music, Woody's flame bar, a tropical courtyard offering other delights such as hammocks slung onto palm trees were all part of the scene.

Guests tried in vain to request a song using the DJ phone booth which offered a choice of selections such as Shakin' Stevens and Rocky Barnett. The operator advised that if you wanted to hear some sounds from

George Michael dial 8 and go and stand outside the toilets - those who did visit the amenities were treated to free French lessons via an audio installation!

### Technical Notes:

- 3 day bump in
- 100m of flats, 200m of drape and 200m of pipe kept the George Aviet Staging guys busy.
- Norwest Sound, and Steve Law ensured perfect sound.
- Gavan Swift's lighting designs suited the style of Cirque, as did the Hawaiian shirt.
- Chameleon provided 200m of festoon 300m of truss - oh yeah and a few lights.
- Overall designer was Robert Dein.
- The Byron Kennedy Banquet Hall was air conditioned for the first time in its history using four 110 kilowatt units pumped in via the rear windows via special splits in the draping.

## Projecting the Future of Projection

(continued)

Who cares about video? Well, everyone.

Although most projectors being installed in the Boardroom and Conference Room market are primarily being used to project computer data, the customer still uses video as their reference to quality as they are conditioned to it. They grew up watching the Tele (TV). And, it certainly doesn't take an engineer to see that the early LCD and DLP projectors left a lot to be desired when it came to video.

What's the big deal about set-up? Well, none of the LCD or DLP projectors have even thought to come out with a 1.5:1 lens. Why a 1.5:1 lens? Well, if you want to retrofit (replace) current CRT installations (and I am sure you will agree there are tons of them out there) then you

need a 1.5:1 throw lens. This allows the projector to be mounted in the exact same loca-



Sony VPL X2000

tion in the room as the CRT projector is. And, in most cases, you can use the same projector mount and just replace the bracket. But, both the Sony and Barco have a zoom lens with a range of 1.5:1. That opens up the entire installed base of projectors. All a sales person has to do is walk into just about any installation they sold in the last 10 years and demo these new projectors and the customer will

(continued next page)

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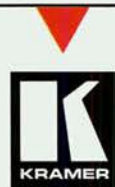
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## Projecting the Future of Projection

(continued)

want to change. They may not be able to afford to change but they will want to change. These projectors are 10 times as bright as virtually ever CRT ever made, and contain a native resolution of 1024 x 768.

So, what else is going on out there? What other projectors will dominate 1999?

Well, here are my predictions.

### DLPs rising

Texas Instruments' reflective mirror technology, DLP, is already used in the world's largest selling projector series of all time, the InFocus LP 420/425. DLP hasn't had the impact here that it has in many places in the world and is still behind the LCD in most market segments but the DLP will climb in popularity in 1999.

Why? Well, it's reflective, which means more light output from the same light source as a transmissive LCD but also black.

Black? Well, as everyone has noticed, black is something that the transmissive LCD technologies have a hard time with. Because light is being projected through 'liquid crystal' material sandwiched between glass, it makes it tough to block all the light. Any light that passes through the glass is projected on the screen.

Thus, black stuff is actually seen as a dark gray. The absence of black means the absence of white (as white and black are opposites and if you can't get one, you can't get the other).

However, in a reflective technology, like DLP, we are reflecting light off something and we can block more of the light and black looks 'blackier'. Although not perfectly black, reflective technologies look much closer to black than a transmissive technology. And, it will only get better.

**Speaking of reflective:** The LCD is going reflective too. Although just about every manufacturer will introduce reflective

LCD technologies into their line in 1999, they will not yet overtake the transmissive poly-silicon technologies.

Why? Well, we've seen an almost perfecting of the transmissive technologies now that they've had over 10 years to work



Barco 6300

on it. So, it will certainly take more than a year to displace this.

However, with the advantages in reflective (light output and better blacks), it will inevitably give transmissive LCD a run at the top - soon. By the way, you may have already seen a reflective LCD technology based projector in action.

Both the Electrohome DLV 1280 (a huge hit in the states in its early months of delivery) and the Hughes/JVC G1000 (JVC G10) are reflective technologies.

### Watch for the portable manufacturers to get better and better:

The first generation fixed installation (Boardroom and Conference Room) projectors from InFocus (LP 1000), Sanyo (9600 series) and Proxima (9300 series) were revolutionary. And, now that they've had time and experience with the fixed installation market, watch for future generations to have all the features you always wanted and needed in a projector.

They will have brighter light output, more lens options, improved video decoder and scaling technology and more complete set-up controls.

### Bright Light:

By the end of this year, 3000-5000 ANSI lumens projectors will be all over the place. I think many people will find it hard to

put a 3000 ANSI lumens projector in the average Boardroom as it will be so bright, but the market for brighter projectors will continue to grow. How bright is bright enough? Well, as far as I can tell, the sun is still the benchmark.

### UltraLight gets lighter:

With the new generation of UltraLight projectors that have recently been introduced by InFocus, Proxima and Sony, it appears that the category will need to change its measurement standard.

Traditionally, an UltraLight indicated a projector under 4 kilos (10 pounds); however, these projectors are all under 3 kilos (8 pounds). In 1999, we should come close to reaching the 1000 ANSI mark with super-small 1024 x 768 projectors.

**The CRT comeback?:** Yes, it's true. The CRT will enjoy a slight increase in sales in 1999 and continue in the year 2000.

Why? Well, HDTV. HDTV uses a totally different aspect ratio as a computer or even than

the LCDs and mirrors (DLP) because they actually use fill the top and bottom with black information (limiting resolution).

However, with a CRT, you can simply set-up the ability to have aspect ratio switching and still maximize resolution by simply changing the horizontal and vertical size of the image. Since this CRT inherently deals with this conversion without losing any resolution, the CRT is, at this point; the best technology for HDTV if you have to switch between the two aspect ratios (PC and HDTV).

Again, this will only represent a small ripple of a sales increase but it's worth noting, as the traditional view is that the CRT is dead.

### The 'line doubler' of the future is here:

The Line Doubler is Dead. In 1998, the market shifted from using line doublers to scalars. For the first time in nine years, there were no new line doublers or line quadruplers introduced at CEDIA (the world's leading Home Theatre trade show).

However, the Scaler made its debut at the beginning of the



Analog Way Trans-Scaler

TV of today. Right now, most TV and computer images are 4:3 (four units wide by 3 units high) but HDTV is 16:9. That means a much wider picture (almost two to one). So, with HDTV broadcasts around the corner and available to the mainstream public on January 1, 2001 in Australia, installers and system designers will have to take this into consideration.

You see, the fact that people will want to switch from a computer video image and TV image (PAL) to an HDTV image causes some problems with digital displays. Sure they can display images in 16:9, but that means that they are not maximizing resolution (as they are not filling all of

year with CSI's Deuce and Snell and Wilcox's Interpolator Gold and then 10 other manufacturer jumped into the Scaler market.

What's a scaler?

Well, it's a box that converts NTSC video into computer pixel video. A line doubler and quadrupler actually only double lines on analog CRT projectors--but a scaler actually converts the video line structure into individual pixels allowing it to be displayed pixel for pixel on a matrix display.

That's important as all fixed-resolution displays (i.e. LCD and DLP) projects images pixel by pixel. So, using a doubler or quadrupler on a digital matrix projector buys you nothing as

opposed to a scaler that can actually customize the image to the exact resolution of your projector. As LCDs and DLPs continue to dominate, this will be the signal enhancement box of the future.

Who makes scalers? Well, check out these web sites: Communications Specialties: [www.commspecial.com](http://www.commspecial.com), Analog Way: [www.analogway.com](http://www.analogway.com) and Faroudja: [www.faroudja.com](http://www.faroudja.com).

Scalers will revolutionize the Staging market in another way, too. The next generation scalers will have built-in switchers that will allow all inputs to be converted to a single output resolution which will make a type of 'genlocking' of computer sources at different frequencies to video possible and eliminate the blanking and glitch in switching signals.

Well, one thing's for sure, 1999 will certainly be a bigger year for the Pro AV market than a year

before.

This is the best time to be selling, installing, hiring and staging audiovisual gear. And, Australia has an added bonus: the Olympics.

Of course, most of the audiovisual equipment will be flown in for the games, but that's not where the real money is anyway.

For three weeks in September 2000, the world's eyes will be on Sydney and the surrounding venues that will host the games.

And, there will be an almost carnival-like atmosphere all over the country. And, everyone will want to watch the games on bigger, brighter and higher resolution displays than ever.

So, the hotels, the clubs and the pubs will be packed with images of the games. And, it will all be made possible by equipment hired, installed or staged by you. •

## The ICIA Institute

*The ultimate in 'cool-geekness'*

By Gary Kayye

One of the 'staples' of ICIA's educational offerings for over 40 years has been the Institute for Professional Development. The Institute, as it is fondly known by the volunteer instructors, is held twice a year and consists of five one-week courses.

Courses include subjects like Staging Techniques, Essentials of Video, Videoconferencing, Rental Management and my class, The Perfect Image. I taught this in Sydney in January, where around 70 people completed ICIA courses.

What started as a class about setting up CRT projectors has evolved. In a five day class we cover the five major display technologies (CRT, LCD, DMD, ILA and Plasma). The course

curriculum has to be almost totally re-written each year. In fact, three of the technologies mentioned above weren't even addressed three years ago!

Because of this, a student of the class in 1994 could take it in again in 1998 and only about 10% of it would be review. In addition, although video and RGB signals haven't changed much, the way these signals are processed in digital projectors isn't as easy as it used to be when analog/CRT projectors were the only game town. The current version of the class has about 1500 PowerPoint slides, over 200 pages of reference readings and five-nine hour days.

The highlight of the class is where we give away the projection secrets. Oh, every projector has them— you just don't learn about them unless you are told about them!

Learn more about ICIA courses at [www.icia.org](http://www.icia.org)

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Write in Reader Service Number: 168

## Dr G: the Gadget Man



The story so far: Dr. G (aka John Grimshaw) has decided less is more, and delved deep into his grab bag to uncover those 101 handy gadgets, widgets, jimjams and snapdads that all go toward Making Your Job Easier. Makers of said things may ship them to Dr. G for appraisal, clo the Connections Cottage. If you want it/them returned, include a prepaid or reply consignment note. So without further ado..... brace yourself!

### UHF Video Transmitter

The Dai-1Chi (pronounced "die one che") video sender will transmit video and mono audio via UHF (channels 21 to 26) over short distances.

Good for quick monitoring of the video output of a device when installing video cables might be too difficult or too expensive.

There are two models (below), and each comes with a DC transformer. I have played with and used the lower powered model to send video camera signals up to 100m "line of sight" with a good UHF antenna at the receiving end. Remember we are NOT talking broadcast quality here.

The low power model is 12V, and \$29.95. The higher powered one is 18V, and \$39.95

- Dai-1Chi Video Sender
- RF-280 \$39.95 inc tax
- RF-150 \$29.95 inc tax
- WES Components, Sydney  
Phone +61 2 9797 9866



### Domestic Audio Ground Loop Isolator

Sometimes the simplest of devices can solve very difficult problems. I once tried to install a domestic surround decoder into a sound system for a theatre, and was having problems.

When the whole system was connected up, I had great pictures from the video projector, but the audio had that wonderful buzz that audio technicians everywhere recognise immediately - potential difference.

There is not enough room here to explain in detail, but the buzz was caused by the earth connection in the audio lines from the



VCR to the surround decoder.

All I had to do to eliminate the problem was install this little gadget (above) and the noise was gone.

- Ground Loop Isolator - ES01
- Price \$7.95
- WES Components, Sydney  
Phone +612 9797 9866

You could talk to The PA People if you want the high quality, imported from USA, balanced audio version (these are a touch more expensive too!)

### Acoustic Foam

Every tried to buy acoustic foam tiles for the studio you are building?

Then, you would know just how expensive they are. One alternative that is considerably cheaper comes from foam manufacturer, Joyce Australia.

With the very regal name of "Convol S32/70C", this foam is dark gray and convoluted in such a way that you could store thousands of eggs. The sheets are 25mm thick (with convolutions up to 50mm), 1400mm x 2000mm and "Combustion Modified" - meaning it has a certified fire rating.

At \$60 approx. per sheet, they are less than one third the price of the real thing, and they are quite good at they job they do. Unfortunately, Joyce Australia do not sell direct to the public,



so you may need to call them to find a local supplier. They will sell direct to schools and government departments - and possibly anyone else who can buy without sales tax.

- Convol S32/70C
- \$60 approx/sheet + sales tax
- Manufacturer: Joyce Australia (outlets in each state)

### Halogen Par38s

It would be hard to deny that those little 12V dicroic light are taking over the (lighting) world. They seem to be installed everywhere you go. They last longer than many conventional lamps, they have a "whiter" light, and they seem to be reasonably robust. Well, Sylvania are making one that is 240V and shaped like a Par38. This is likely be quite useful in various lighting applications.

At the moment, they only come in two varieties - 10 degrees (spot) and 30 degrees (flood). One draw back with them is the reflector is a different shape to the traditional Par38, and sometimes the halogen one won't fit into existing fittings. The general retail price from my favourite lamp wholesaler was \$17.50, but you should (always) bargain for a better price.

- Sylvania Hi-Spot 95, 75W - Flood 30 and Spot 10
- Price: \$17.50 + sales tax
- Supplier: Koala Wholesale  
Phone 02 9552 1212



### Sound Check 2 CD

By Stephan Court and Alan Parsons.

On numerous occasions, this magazine has mentioned this



very useful CD, as well as its predecessor. This CD is a comprehensive catalogue of tools, including 31 tracks of each of the 1/3 octave bands, pink noise and phase checks, sweep tones and sine and square wave spot frequencies.

Then the CD moves onto completely "dry" recordings of vocals and instruments, followed by some selected music tracks and sound effects. Lastly, the CD contains utility tracks some of which are A-44C tuning reference, EBU 25 frame timecode, SMPTE drop and non-drop timecode and digital black.

Altogether, these tracks can quickly become one of the most useful tools in the FA technician's arsenal, particularly when you consider the costs involved in purchasing spectrum analyzers, tone generators and even test music CDs.

One additional option that is available for this CD is that it can be purchased with an integral sound pressure level meter. This line of LEDs simply indicate the amount of sound it can detect.

Coupled with the CD, you have an instant hand held Spectrum Analyser.

- Sound Check 2
- CD \$75.02 + sales tax
- CD and Spectrum Analyser  
\$190.77 + sales tax
- RS Components

### Digital (Audio) Format Translator

This is a simple little black box, but it might be useful to those people that use various digital

machines. Using consumer SPDIF only, it with take optical data in, and spit coaxial data out - or vice versa. When you consider that there are no Mini Disc machines out there with full coax in and out, and most computer sound cards that have digital I/O are coax, you can see where this device can be handy.

Made by a small company in USA, and is best purchased direct from that company. It does need a 9V DC power supply - but DO NOT ask the US company to ship you one (110V transformers do not react kindly to 240V!)

- DFT - Digital Format Translator
- Price: US \$99
- Supplier: Core Sound
- Web Address [www.core-sound.com](http://www.core-sound.com)



## A/V Distributor Amp

Sony is now importing a 5 way video/stereo audio distribution amplifier. It is very simple to use - you plug it in and turn it on.

Nothing tricky about it at all. The input stage is looped so you can stack up to four of these devices together. The device itself is 1RU high and is made to be rack mounted. The front face simply has a power button, and indicator LEDs to tell you that it has video and audio signals.

I recently used it to send: - 2x mixed vision lines from a live event to a second venue +100m in distance away

- 1x vision mixer monitor
- 1x VCR
- 1x audio mixer monitor
- ...and the device did not miss a beat.

- A/V Distribution Amplifier SRP - 200DA
- Price: \$483 + sales tax
- Sony Professional Products



## Victorinox's Swiss Tool

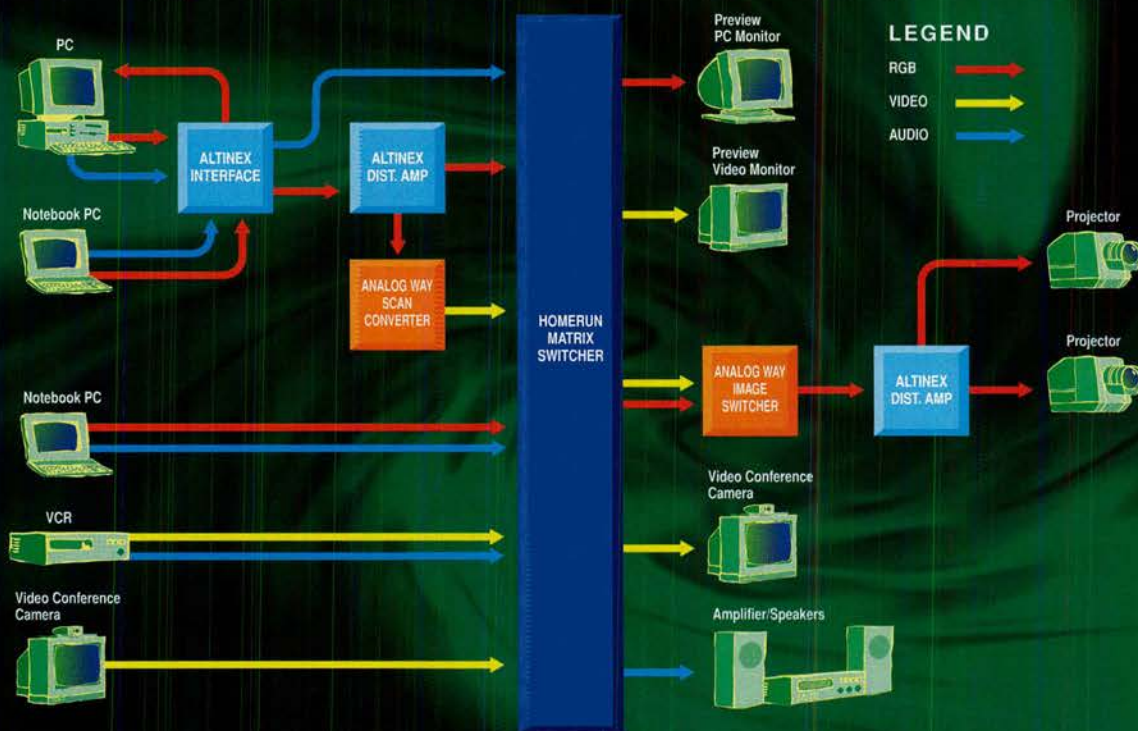
Every technician needs tools. The best tools take up little space, lightweight, and quick and easy to use. This description could be easily applied to Victorinox's new "Leatherman" style tool. Following the trend set by the company that brought you the original Leatherman, this combination tool has a few refinements. It is slightly bigger than the standard Leatherman, and the blades and other tools come from the other side of the handle. As a result of this, they

have been able to round the edges of the pliers handles, making it considerably more comfortable to use. The blades and other tools all lock into position, so nasty surprises are avoided because the blade cannot slip closed. It comes with a leather pouch. As far as buying it is concerned, I have found that the best place to buy this in Sydney is a place called "Peters of Kensington", but any retailer of Victorinox knives should carry it.

- Victorinox's Swiss Tool
- Price: under \$140
- Peters of Kensington (and anywhere you find one!)

## AV Application?

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 Email: [axis\\_av@iaccess.com.au](mailto:axis_av@iaccess.com.au)

## Australia Day Spectacular

**W**hen special event producer Andrew Walsh asked Sydney projection and lighting design company, The Electric Canvas, to provide large scale image projection for this year's Australia Day Spectacular at Darling Harbour, a number of unique design problems had to be solved.

Firstly the brief called for slide projection onto two 10m diameter inflatable spheres. The spheres needed to be mounted on top of the floating projection booths permanently moored in Cockle Bay for the nightly Aqua Magic waterscreen show. Because the images would need to be identical on each inflatable, a projection position would need to be chosen that gave the same distance to each sphere.

The only suitable location was in front of the Imax theatre. This was fine for spectators at the southern end of Cockle Bay but Andrew Walsh was concerned about the large VIP contingent



viewing from the balconies of the convention centre on the western side. In order to provide a good view from this vantage point, the western sphere would require a second projector positioned to provide a seamless image around 270 degrees of this sphere.

This projector was added to the spec and positioned on the water's edge in front of the VIP area. Peter Milne and his team went to work to develop a soft masking system that would allow images from the two projectors to merge invisibly into one picture that wrapped around 270 degrees of the western sphere.

The Electric Canvas's giant 7kw PIGI projectors utilise a film strip concept allowing high intensity scrolling pictures to be projected up to about 30m in size. The film speed and direction are accurately controlled and synchronised by computer allowing any number of projectors to be combined to create giant scrolling panoramas that appear seamless as if projected from the one source. Of course this would normally be achieved onto a flat surface, not one that curves away both horizontally and vertically.

The distance for the extra "VIP" projector was significantly shorter than the others and the choice of lenses and fine tuning of all projector locations and optics was needed to assure that the scale of artwork for the films on all three PIGIs remained con-


stant. Tide variation and drift of the floating inflatables had to be kept careful track of. There would be no opportunity for a detailed line up on the night.

The projections had to compete with a large Chameleon lighting rig and a huge Syd Howard fireworks component that would light up the sky during the show, and with two of the projectors over a hundred meters from their target, every scrap of light output was required.

Some of the scenes in the show were scrolling montages or panoramic scenes. As one of the spheres had two projectors and a 270 degrees image face, allowance had to be made in all the film and art design to ensure that no one within the viewing area for either of the spheres missed out on the beginning or end of a story-telling scroll.

The PIGI projectors, in fact, have two independent film scrolls meaning that the light passes through two pieces of film in the projection gate. This allows for complex masking or reveal effects as well as offering the designer the ability to create dynamic kinetic effects.


The Electric Canvas is a subsidiary of PM Production Design and Management Pty Ltd located in Artarmon NSW. Since the PIGI projection system was introduced into Australia in late 1997, the company has completed over forty projection jobs of all shapes and sizes.




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Write in Reader Service Number: 138

Prices INCLUDE sales tax and were correct on 15th February 1999. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

## CRT PROJECTORS

### BARCO

Trace Pacific (03) 9646 5333

**BV 508** video projector only; 7" CRT; 1100 CRT lumens light output. \$10,340.

**BV 708S with Line Doubler** HDTV compatible; 7" CRT; 1200 CRT lumens light output. \$16,870.

**BV 708S MM with Line Doubler** HDTV compatible; 7" CRT; 1100 CRT lumens light output. \$19,525.

**BD 708S with Line Doubler** HDTV compatible; fitted with IRIS 3 automatic convergence; 7" CRT; 1200 CRT lumens light output. \$21,950.

### ELECTROHOME

Amber Technology (02) 9975 1211

**Electrohome Marquee 8500 ULTRA** 225 ANSI LUMEN; 1350 X 1100 ANSI PIXEL; 39.5 - 185 Hz; 15 - 152 KHz. RGB input standard. Optional component, composite and Y/C.

High resolution, advanced geometry adjustment for flat, curved and rear project screens. \$47,500.

**Electrohome Marquee 9500LC ULTRA** 260 ANSI LUMEN; 1500 X 1200 ANSI PIXEL; 39.5 - 185 Hz; 15 - 152 KHz. RGB input standard. Optional component, composite and Y/C. 9" CRT, liquid coupled lens. 9 zone astigmatism and 8 zone contrast modulation. \$66,090.

### NEC

NEC Australia 131632

**XG1351** 8" CRT with liquid coupled optical system, data compatible, 15-135kHz, 2500 x 2000 max RGB resolution, max 1500 TV lines, 240 ANSI lumens, up to 5 inputs. \$29,995.

**XG1101** 8" CRT with liquid coupled optical system, data compatible, 15-110kHz, 2500 x 2000 max RGB resolution, max 1500 TV lines, 240 ANSI lumens, up to 5 inputs. \$24,995.

**XG751** 8" CRT, data compatible, 15-75kHz, 1600 x 1200 max RGB resolution, max 1500 TV lines, 230 ANSI lumens, up to 5 inputs. \$18,995.

### SONY

Sony Australia 1800 01 7669

**VPHV20M** video CRT projector. 700 lumens (peak white), composite, S-Video, Component and RGB inputs, 16:9 and 4:3 switchable, on screen menus, 70"-250" screens, RMPJV20 remote control supplied. \$9900.

**VPHD50QM** multiscan projector. 700 TV lines (video) 1000 TV lines (HDTV), 1280 x 1024 real resolution for data, scan rates up to 150Hz x 64kHz, 800 lumens (peak white) RS422 control, 53 input memories, picture orbiting, on screen menus, optional line doubler, optional IFB input boards for remote switcher. \$18,361.

**VPHG70QM** multiscan projector. 700 TV lines (video) 1100 TV lines (HDTV), 1700 x 1200 real resolution for data, scan rates up to 150Hz x 110kHz, 1200 lumens (peak white) RS422 control, 100 input memories, special virtual reality model available for deeply curved screens, picture orbiting, on screen menus, optional line doubler, optional IFB input boards for remote switcher. \$34,916.

**VPHG90M** Sony's flagship CRT projector. 1100 TV lines (HDTV), 2500 x 2000 real resolution for data, scan rates up to 150Hz x 150kHz, 1300 lumens (peak white) RS422 control, 137 input memories, special virtual reality model available for deeply curved screens, picture orbiting,

on screen menus, optional line doubler optional IFB input boards for remote switcher. \$58,560.

## LCD/DLP/DMD COMPACT

### A&K

A&K Australasia (02) 9555 7221

**Astro Beam 530** DLP Projector, SVGA 800 x 600 resolution, 4.5kg, composite + S-Video, motor zoom lens, 600 ANSI lumen. Made in Norway. \$8418.

**Astro Beam 540** DLP Projector, XGA 1024 x 756 resolution, 4.5kg, composite + S-Video, manual zoom, 650 ANSI lumen. Made in Norway. \$12,078.

**A&K Astro Beam 1200** DLP Projector, XGA 1024 x 756 resolution, composite + S-Video, zoom lens, 1200 ANSI lumen. Made in Japan. \$15,860.

### AMPRO

EAV Technology (03) 9417 1835

**ANI300** 1000 ANSI lumen compact projector, 1280 x 1025 native resolution (SXGA), reflective HDLV IBM LCD panels, 2000 hour lamp. \$40,000.

### ELECTROHOME

Amber Technology (02) 9975 1211

**Electrohome DLV 1280** IBM DLV Technology; 1000 ANSI LUMEN; 1280 X 1024 with resizing 500 WATT Xenon; Auto set up, brightness control; RGB/VGA input standard. Optional component, composite and Y/C. Designed for corporate, training and control rooms. \$59,890.

**Electrohome VistaGraphX 2500** 3 chip DLP 2000 ANSI LUMEN; 1024 X 768 with

resizing; 500 watt Xenon; 15 - 100 KHz; 45 - 120 Hz; Zoom and fixed lens. RGB input standard. Optional component, composite and Y/C. Designed for home theatre/corporate video and data. \$145,180.

### EPSON

Various Distributors (02) 9903 9124

**EMP5100** 6.6kg, 245 x 380 x 159, 750 lumens, 120 UHE lamp, 12 month warranty, SVGA resolution, brightness uniformity 85%. \$9760.

**EMP5500** 4.2kg, 238.5 x 346 x 85, 650 lumens, 120 UHE lamp, 12 month warranty, SVGA resolution, brightness uniformity 95%. \$9860.

### HITACHI

Hitachi Australia (02) 9888 4100

**CP-S830** Ultra compact - 4.4kg. 800 x 600 resolution (XGA), 650 ANSI lumens of brightness. Two RGB inputs, several video inputs and an RGB output, VHB lamp rated at 2000hrs. Features - 1W stereo speakers and wide range zoom lens & active-matrix LCD panel. \$9995

**CP-X955W** Remote control unit with mouse function & laser pointer. Weighing 17.8 pounds. 1,110 ANSI Lumens; True XGA - 1024 x 768 resolution; 2 RGB data and audio/video inputs. Front air discharge system. Built in speakers. 200:1 contrast ratio. Power zoom lens - 1:1.5 power focus. \$15,395.

**CP-L850** 3 panel LCD projector with high resolution S-VGA at 800 x 600 (compressed XGA at 1024x768). 650 ANSI Lumens incorporating Hitachi's exclusive Polarisation Converter. Two PC inputs, two S-Video and two composite video inputs - automatically detected. Built in audio amplifier, twin stereo speakers. Remote

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control unit with mouse function. Zoom lens controls image output from 21" to 300" diagonally. One touch height adjustment. \$8,995.

#### IN FOCUS SYSTEMS

*Electroboard (02) 9433 4444*

**LitePro 425** DLP technology from Texas Instruments, 700 ANSI lumens, 400:1 contrast ratio; true SVGA (800 x 600) display with compression for XGA (1024 x 768). \$9900.

**LitePro 750** Polysilicon TFT LCD, 800 ANSI lumens, 300:1 contrast ratio; true XGA, 4.4kg, quiet 32dB, two computer inputs, single cable connector with CableWizard 3. \$15,900.

**LitePro 735** true XGA (1024 x 768) polysilicon LCD with compressor for SXGA (1280 x 1024), 700 ANSI lumens, 300:1 contrast ratio; 5.4kg, easy connection with CableWizard 3. \$15,900.

#### JVC/HJT

*Hagemeyer (Aust) BV (02) 9370 8834*

**DLA-G10E** 14kg, 1000 ANSI Lumens, resolution 1365 x 1024, 400 Watt Xenon Arc Lamp, Inputs: 2 x RGB HV, VGA, Composite, YC, Component (Video and HDTV) Light Modulator: 3 DILA Direct Drive Liquid Crystal light valves. \$26,460.

**ILA-100** 75kg, 1,800 ANSI Lumens, resolution 1600 x 1200, 750 Watt Xenon Arc Lamp, Contrast Ratio 200:1, Inputs: RGB HV, Component (Video and HDTV) Lens Options: Motorised Zoom 3:1 - 8:1, Fixed 1:1, 1.5:1. \$71,370.

#### KODAK

*Kodak (03) 9353 2261*

**DP850** single chip DLP, 4.5kg, SVGA, 550 ANSI lumens, motor zoom lens 1.5X, 1R remote control. Inputs: computer, S Video, Composite, Stereo Audio. \$8500.

**DP850** DLP, 4.5kg, XGA, SVGA Mode, NTSC, SECAM PAL, snap in video tuner, 650 ANSI lumens, manual zoom lens 1.5X, 1R remote control. Inputs: computer, S Video, Composite, Stereo Audio. \$10,400.

#### MITSUBISHI

*Mitsubishi (02) 9684 7777*

**LVP-X200E** 9.8kg; 1200ANSI lumens; 1024 x 768 (XGA) resolution; 2000hrs metal halide lamp; 2 PC inputs, 2 video inputs, 2 PC card inputs. Features: picture in picture, keystone correction, expand digital zoom, computer-free presentation, very low fan noise, one touch height adjustment, 16:9 and 4:3 aspect ratios, RS-232 control. \$13,500.

**LVP-X120E** 4.5kg; 1000ANSI lumens; 1024 x 768 (XGA) resolution; 2000hrs UHP lamp; 1 PC input, 1 video input, 1 PC card input. Features: keystone correction, expand digital zoom, computer-free presentation, zero fan noise, one leg height adjuster, 16:9 and 4:3 aspect ratios, RS-232 control. \$12,995.

**LVP-SV120E** 4.5kg; 750ANSI lumens; 800 x 600 (SVGA) resolution; 2000hrs UHP lamp; 1 PC input, 1 video input, 1 PC card input. Features: keystone correction, ex-

pand digital zoom, computer-free presentation, zero fan noise, one leg height adjuster, 16:9 and 4:3 aspect ratios, RS-232 control. \$1790.

**LVP-X100E** 9.8kg; 600ANSI lumens; 1024 x 768 (XGA) resolution; 2000hrs metal halide lamp; 2 PC inputs, 2 video inputs, 2 PC card inputs. Features: picture in picture, keystone correction, expand digital zoom, computer-free presentation, RS-232 control. \$9500.

#### NEC

*NEC Australia 131632*

**MT1035** LCD 1.3" x 3 with microlens, 1300 ANSI lumens, 1280 x 1024 max RGB resolution, 150w longlife lamp, power zoom/focus, 1.R./hardwire remote, keystone ADJ. \$18,995.

**MT1030** LCD 1.3" x 3, 1000 ANSI lumens, 1280 x 1024 max RGB resolution, 150w longlife lamp, power zoom/focus, 1.R./hardwire remote, keystone ADJ. \$13,695.

**MT830** LCD 1.3" x 3, 1100 ANSI lumens, 1024 x 768 max RGB resolution, 150w longlife lamp, power zoom/focus, 1.R./hardwire remote, keystone ADJ. \$10,795.

**LT100** single chip DMD compact, 1000 ANSI lumens, 1280 x 1024 max RGB resolution, manual zoom/focus, 1.R./hardwire remote, video aspect ratio ADJ, 4.9kg. \$14,985.

#### PANASONIC

*Panasonic Australia (02) 9986 7400*

**PT-L556EA** 5.8kg, 600 ANSI LUMENS, SVGA (XGA intelligent emulation),

Lamp:1,100 hours, Inputs:1 x RGB in, 1 x RGB out, 1 x Video in, PC Memory Card input. Features: this project enables users to have PC less presentations with the use of the memory card slot. All of your presentation can be store to a flash memory card and accessed immediately without the PC being attached. \$8995.

**PT-L795E** 9.8Kg, 650 ANSI Lumens, XGA, Lamp: 2000 hours. Inputs: 2 x RGB in, 1 x RBG out, 1 x Video in. Major Features: Lens shift function to eliminate keystoneing, Power zoom and focus, Video impose, digital zoom enlarge areas on screen 3 times normal size. \$14,995.

**PT-D995E**: 14kg, 1000 ANSI Lumens, SXGA, Lamp: 1000 hours. Inputs: 2 x RGB in, 1 x RGB out, 1 x video in. Major Features: Power zoom and focus lens, True SXGA compatibility. \$28,995.

**PT-L797E** 9.2Kg, 1600 ANSI Lumens, XGA (SXGA intelligent emulation), Lamp: 2000 hours, Inputs: 2 x RGB in, 1 x RGB out, 1 x video in, 1 x S-video in. Major Features: Bright Optic dual lamp system, Intelligent resizing for VGA/SVGA/SXGA/Mac displays, stackable for double brightness up to 3200 ANSI Lumens, Lens shift function to eliminate keystoneing. \$19,995.

#### PLUS

*Electroboard (02) 9433 4444*

**UP-1100** DLP display technology by Texas Instruments, true XGA (1024 x 768) with compression for SXGA (1280 x 1024), 1000 lumens, 500:1 contrast ratio, 4.7kg. \$13,500.

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# buyers guide::

## VIDEO PROJECTORS

Prices INCLUDE sales tax and were correct on 15th February 1999. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

### SANYO

Sanyo Australia (03) 9875 4445  
**PLC400P** video (AV) only projector; 10.5kg; 200 ANSI lumen; 150" max. screen; illuminated remote control; ceiling mountable; 544, 410 pixels. \$4999.  
**PLC5600** SVGA (data) and video projector; 5.3kg; 700 ANSI lumen; 400" max. screen; wireless remote control with mouse; motor driven zoom/focus; 1557, 504 pixels; multi system. \$11,999.  
**PLC8800** XGA (data) and video projector; 5.9kg; 500 ANSI lumen; 400" max. screen; wireless remote control with mouse; motor zoom; multi source projector; 2359, 296 pixels. \$15,999.  
**PLC9000E** XGA (and compressed SXGA) multimedia projector; 17kg; 2100 ANSI lumen; remote mouse function stereo speakers; 2 computer input and 2 video; 2359, 296 pixels. \$26,999.

### SHARP VISION

Sharp Corporation Australia (02) 9830 4600  
**XV-C20E** compact lightweight unit on y 4.5kg, 500 line resolution, multisystem, full remote control, flexible projection. \$3699.

**XV-Z1E** 350 ANSI lumens, 3 x 1.3" polysilicon panel, full remote control, front, rear and ceiling projection, DVD component terminal, 500 TV line resolution - multisystem, 1.1:6 zoom lens. \$6679.

### SONY

Sony Australia 1800 01 7669  
**VPLS900M** true SVGA portable LCD, up to SXGA intelligently compressed. 1000 ANSI lumens, 5.8kgs, magnesium die cast shell. UHP lamp and auto pixel alignment. Includes 2 year warranty and soft carry case. \$10,675.  
**VPLX1000M** true XGA portable LCD, up to SXGA intelligently compressed. 1000 ANSI lumens, 5.8kgs, magnesium die cast shell. UHP lamp and auto pixel alignment. Includes 2 year warranty and soft carry case. \$15,738.  
**VPLSC50M** true SVGA ultra compact LCD, only 3.7kgs. Multiscan capability up to up SXGA resolution. 500 ANSI lumens, UHP lamp. Built-in lens shutter. Includes 2 year warranty and executive soft carry case. \$8418.  
**VPLXC50M** true XGA ultra compact LCD, only 3.7kgs. Multiscan capability up to up SXGA resolution. 600 ANSI lumens, UHP

lamp. Built-in lens shutter. Includes 2 year warranty and executive soft carry case. \$13,298.

### TELEX

Telex/EVI Audio (03) 9810 4511/(02) 9648 3455  
**P600** LCD projector, 650 ansi lumens, true XGA (condensed SXGA) resolution, 2 computer inputs with monitor loop through (Mac capable), composite video, S-VHS, L/R audio line inputs, stereo speaker system built in, power zoom, power focus, laser pointer built into remote, remote computer mouse capabilities, 120 watt UHP user replaceable lamp, 6.8kg. \$9999.

### TOSHIBA

Audio Visual Australia (03) 9720 9888  
**TLP 711** 390x123x380 (mm); Lumen output: 1400 ANSI Lumens; Resolution: XGA (1024 x 768); Lamp: 120W UHP (2000 hours); Weight: 8.6kg; Inputs: 2 RGB: D sub 15 pin; 2 audio for RGB: stereo mini jack; 2 video: S video; 2 audio for video: stereo mini jack; Features: The latest reflective technology producing whiter, brighter and sharper images. \$15,435.

**TLP 511** 340x128x363 (mm); Lumen output: 650 ANSI Lumens; Resolution: XGA (1024 x 768); Lamp: 120W UHP (2000 hours); Weight: 8.0kg; Inputs: 1 RGB: D sub 15 pin; 1 audio for RGB: stereo mini jack; 1 video: S video/RCA; 1 audio for video: RCA; Features: Like the other Toshiba models, a standard feature incorporates built in OHP function with further use of hard copy & 3D objects. \$11,590.  
**TLP 411** 363x170x455 (mm); Lumen output: 500 ANSI Lumens; Resolution: SVGA (800x600); Lamp: 250W metal halide (2000 hours); Weight: 12kg; Inputs: 1 RGB: D sub 15 pin; 1 audio for RGB: RCA; 1 video: S video/RCA; 1 audio for video: RCA. Features: Fine data output and exceptional video quality. \$7565.  
**CTX EzPro 585** 259x162x317 (mm); Lumen Output: 500 ANSI Lumens; Resolution: SVGA (800x600); Lamp: 330W metal halide; Weight: 4.7kg; Inputs: 1 RGB: 15 pin D; 1 video: RCA/S-VHS 4 pin mini/ din (ALT); 2 audio: RCA; 2 video for audio: RCA. Features: Super light & compact with rich colour, keystone correction, digital zoom & carry case. \$4100.

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# buyers guide::

## VIDEO PROJECTORS

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### HIGH OUTPUT

#### BARCO

Barco Systems (03) 9646 5833

**BD 2100** 1024 x 768 pixels resolution; 1000 ANSI lumens light output; portable. \$16,511.

**BD 3300** 1280 x 1024 pixels resolution; 2000 ANSI lumens light output; total colour factory fitted; portable. \$35,986.

**BG 6300** 1280 x 1024 pixels resolution; 2200 ANSI lumens light output; total colour factory fitted; portable. \$28,227.

#### DIGITAL PROJECTIONS

Gearhouse Systems (08) 8293 8155

**Power 3GV** lightweight at 51kgs, 3000 ANSI lumens, SXGA compatibility, motorised lens mount, 1000 hr lamp life, high native resolution of 800 x 600 pixels. 3 chip DMD. \$142,000.

**Power 5DV** 5000 ANSI lumens, XGA compatibility, 500 hr lamp life, 88% pixel factor with 90% luminance and no hot spots, fast and easy replacement of Xenon lamps, native resolution of 848 x 600. 3 chip DMD. \$176,000.

**Power 5GV** fully upgradeable to Power 7GV, 5000 ANSI lumens, factory preset convergence for fast and simple align-

ment, weight of 91kgs, native resolution of 1024 x 768. 3 chip DMD. \$196,000.

**Power 7GV** minimum 6500 ANSI lumens - bright enough for any application, advanced signal processing and image resizing by Cintel, native resolution of 1024 x 768. 3 chip DMD. \$218,000.

#### ELECTROHOME

Amber Technology (02) 9975 1211

**VistaGraphX 4000** 3 chip DLP; 4000 ANSI LUMEN; 1024 X 768 with resizing; 2 Kw Xenon; 15 - 100 KHz; 45 - 120 Hz; Zoom and fixed lens. RGB input standard. Optional component, composite and Y/C. Designed for corporate/training rooms/electronic theatre. \$176,160.

#### IN FOCUS SYSTEMS

Electroboard (02) 9433 4444

**LitePro 1200** 1200 lumens, true XGA (1024 x 768) with compression for SXGA (1280 x 1024), multiple computer and video inputs, built-in PC card, digital and power zoom. \$18,900.

**LitePro 1000** 1000 lumens, true XGA (1024 x 768) resolution, multiple computer and video inputs, multiple lenses, 350:1 contrast ration, polysilicon LCD, no convergence necessary. \$18,000.

**LitePro 740B** 1500 lumens, contrast ra-

tio 350:1, true SXGA (1280 x 1024) resolution for no lost pixels, compatible with all Unix workstations, advanced PC and Macintosh. \$37,900.

#### JVC/HJT

Hagemeyer (Aust) BV (02) 9370 8834

**230GSC** 118kg; 2700 ANSI lumens; 1600 x 1200 resolution; 1600w Xenon Arc lamp; contrast ratio 950:1; Inputs - RGB HV, VGA, Component (Video and HDTV); lens options: motorised zoom 3:1 - 8:1, fixed 1:1, 1.5:1. \$151,325.

**240GSC** 118kg; 3300 ANSI lumens; 1600 x 1200 resolution; 2000w Xenon Arc lamp; contrast ratio 1000:1; Inputs - RGB HV, Component (Video and HDTV); lens options: motorised zoom 2.6:1 - 5.1:1, fixed 1:1, 1.5:1, 7:1. \$174,400.

**540SC** 163kg; 3700 ANSI lumens; 2000 x 1280 resolution; 2000w Xenon Arc lamp; contrast ratio 1200:1; Inputs - 2 x RGB HV; Decoder optional; lens options: fixed 0.885:1, 2.177:1, 1.5:1, 3:1, 5:1, 7:1, 10:1. \$204,960.

**570SC** 168kg; 6000 ANSI lumens; 2000 x 1280 resolution; 3000w Xenon Arc lamp; contrast ratio 1200:1; Inputs - 2 x RGB HV; Decoder optional; lens options: fixed 0.885:1, 2.177:1, 1.5:1, 3:1, 5:1, 7:1, 10:1. \$313,540.

#### NEC

NEC Australia 131632

**XL6500** 3 chip DMD, 6500 ANSI lumens, 1280 x 1024 max RGB resolution, 1.6kW Xenon arc lamp, 3D-video image processing, 9 optional lenses. \$189,995.

**XL3500** 3 chip DMD, 3500 ANSI lumens, 1024 x 768 max RGB resolution, 1.6kW Xenon arc lamp, 3D-video image processing, 6 optional lenses. \$129,995.

#### SANYO

Electroboard (02) 9433 4444

**PLC-9000EA** 2100 lumens, 300:1 contrast ratio, active matrix TFT LCD's, no convergence necessary, multiple lenses available, plug-and-play for easy operation. \$24,000.

#### SONY

Sony Australia 1800 01 7669

**VPLX2000M** true XGA installable projector covering up to UXGA (1600 x 1200) res. 2400 ANSI lumens. Fail safe lamp system - 4 x UHP lamps. Auto Dot Phase, Power Zoom, Focus and Power Shift. Includes 2 year warranty. \$46,970 + lens.

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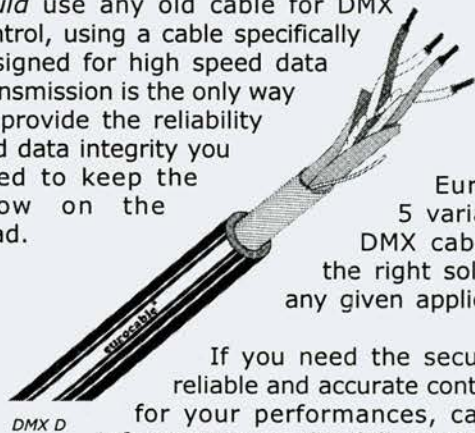
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Write in Reader Service Number: 131

## Audio Visual Dynamics : doing it independently

Profile, by Mandy Jones

**A**udio Visual Dynamics is a Melbourne based corporate hire and staging company specialising in conferences and presentations. Managing Director Peter Worth has seen the AV industry change dramatically in the seven years since his family purchased the company. The days of the old overhead projector or Kodak carousel are gone and computer generated graphics presentations are the new standard.

Through accident rather than by design, what started out as a very simple dry hire company has become a first class presentation provider with impressive corporate clients and an involvement in major events such as the Logie Awards and the Carols by Candlelight.

"We're up against the major public companies and equipment hire franchises, but we're small, we're Melbourne based, we're entrepreneurial and we can look after our clients better than any interstate or overseas operation can. We're a very customer driven operation. That's what we have a reputation for."

Recognising the franchise trend that has begun to dominate the Australian audio visual market, Peter believes entrepreneurial owner-operator businesses will always win out when it comes to service. And while Audio Visual Dynamics continues to grow in clientele and staff, Peter says the company will not expand to other states.

"We're not planning to open an interstate office because I don't believe you can franchise service. We've got a terrific relationship with Videoplus who are the leading independent audio visual hire company in Sydney and we know our clients get excellent service when they go there."

The Melbourne conference market is booming, and technological developments are allowing high standards of presentation to become easier to achieve.

"As 'plug and play' technology becomes better it's really going to give clients a much more economic way of producing data presentations at conferences. Whereas data projection systems were very expensive in the past, particularly for break-out rooms, now there's more incentive for presenters to go to that form of technology. Our clients email their presentations to us in advance, and we pre-load it onto the company-owned laptops, bring them to the presentation, set them up and check it so all the client has to do is walk in and off they go. In the past we would have to wait until they arrived before we could load it and then line it up and focus the projection.

"And with super-bright projectors like the Sanyo PLC9000 Computer Projector which produces 2200 ANSI Lumens of brightness, you can project computer and video images with the lights on in the conference room so the audience can see and write notes and still see very clean bright images on the screen. That was previously unthinkable from small desktop projectors available on the market. They're going to be the future of the market. I bought a fleet of them after seeing them at INFOCOMM last year - from what I understand we're

the first to have them in the rental market in Australia."

Peter believes the next big trend in the AV market will be a boom in video-teleconferencing which will become a cheaper option for meetings once the cable roll-outs are complete. A trend he hopes to see emerge is a change in the representation from equipment manufacturers in Australia, which Peter says has been very poor.

"Hire companies are very difficult people to deal with because we don't buy every day of the week, we buy and replace our fleet as needed. So a salesman may call for ages and not get any answer at all and all of a sudden we'll buy twenty. Secondly, whatever price we pay for a product, we then rent it as a percentage of, and if we buy



too high we're not economic as hirers, so we have to buy at the cheapest possible price. We've become very loyal to suppliers who do call on us, even if we do pay more than we should.

"When I go to trade shows and talk to other Australian rental companies, they all say the same thing, they have never seen a manufacturers representative at their door. And from my background in the clothing industry, that is something that's foreign to me - if we didn't call upon our retailers all the time we'd lose them, yet manufacturers of AV equipment don't bother. I don't understand why that is."

• Audio Visual Dynamics Pty Ltd, Telephone +61-3 9699 3788

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# ShowSafe

Australian Entertainment Industry Health & Safety Association

# LIVE

## PRODUCTION REPORTS



### THE COUNTRY MUSIC ASSOCIATION OF AUSTRALIA FINDS A NEW HOME

For many years the main venue for the Country Music Association of Australia's big awards night in Tamworth was the local rodeo arena. As the event grew in stature, the Association began to express its concerns about the venue and even hinted at taking the Awards away from Tamworth.

In 1996, after 20 years of discussion, it was decided that a purpose-built venue finally had to be built. Local business donated \$800,000, the Federal Government \$1.25 million and the State Government another \$1.25 million.

On September 19th, the Tamworth Regional Entertainment Centre opened with the *Country Music Toyota Concert of the Century* starring 27 top country artists. Since then it has hosted a Cold Chisel concert, a major home & leisure show, craft show and a schools concert. But it was the *Toyota Country Music Awards of Australia*, a culmination of the whole Tamworth experience, which put TREC on the map. Broadcast by Channel 7 and Prime in New Zealand, the show reached millions of potential viewers.

"TREC was built with a minimalist approach as there was only a

budget of \$5.6 million. Basically it's really an air-conditioned shell with no permanent seating. There's a proper stage and fibre optic connections for television broadcast but there are no production facilities as yet. The venue does have some acoustic problems which are being working on. Also looking into whether the power is adequate, as it must be re-distributed in some areas.

The building's floor area is approximately 7500m<sup>2</sup> and the main auditorium can seat 5000 people. Each roof truss is at least 10m off the floor and can hold 2000kg additional loading. Each of the smaller trusses which run between the large trusses are designed to take up to 2000kg of load.

"The building is pretty basic - concrete walls, ceiling and floors," said Philby Lewis of Lots Of Watts, the audio and lighting supplier for the Toyota Country Music Awards. "We had a bit of input when they were building it - we said spend your money on the rigging, power and acoustics. You can deal with the aesthetics later when you get more money. That's kind of what they did - the rigging is really good with a good roof structure and decent loading points, the

power is together but the acoustics is not so good.

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#### LIGHTING

1 x Leprecon LP2000 96ch console; 1 x Jands Echelon console; 1 x LSC Axion 24/48 console; 10 x Jands HP12 dimmers; 3 x Jands HP6 dimmers; 150 x Par cans; 9 x 5K fresnels; 8 x 1.2K fresnels; 9 x 6-lites; 6 x 1K pups; 2 x 2K blades; 2 x 5K Colorset scrollers; 4 x Studio Due City Colors; 8 x Studio Due Stratos 700; 7 x Martin MAC600; 3 x Clay Paky Super Scan Zooms; 2 x Altman Explorer followspots + truss chairs; 2 x F100 foggers; 2 x oil crackers; 13 x Lodestar 1 tonne motors; 4 x chainblocks; 234ft 18" box truss; 30m 300mm tri-truss

# SHOWS WE'VE SEEN LATELY

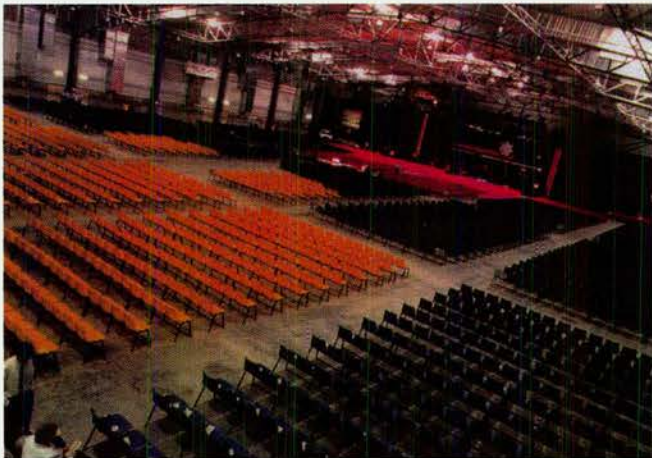
## A Punter's Perspective

### A FUNNY THING HAPPENED ON THE WAY TO THE FORUM

"Their major issue with the acoustics is keeping the sound within the building to keep nearby residents happy. They have achieved that but it's a bit of a concrete bucket in there."

With no existing house equipment, Lots Of Watts bought in everything for the lighting and audio. Philby designed the lighting with Stuart Anderson and Prime supplied a Television Lighting Director.

"He was quite new to the job and we were probably teaching him this time round as to how the actual show runs - we've been doing it six years now," said Philby. "Lighting wise, the show ran really well. We had a few problems with lecterns from an audio point of view. There was a lot of the room coming back through the lectern mics, the room is just so live."



There were four audio splits - FOH, monitors, TV, and radio. FOH for the bands was operated by Ross Ford whilst Peter Twardt did all the high level and lectern mixing. Ted Howard mixed it down for television and Dennis Fox mixed it down for radio.

Television Director for the event was Dennis Murphy of Big Picture Australia. Dennis worked with the Prime television crew on the nine-camera shoot with Global Television supplying the OB. Peter Cross was the Television Producer and John Spence produced the event from a stage point of view.

"It went OK, although there was a lot of compromise mainly trying to access acts during the festival for rehearsals," said Dennis. "We don't get the option of a dress rehearsal which puts a lot of pressure on everyone. But over the years we've built up a quorum of regular operators and everyone knows the limitations they are working under."

● **Cat Forcer**

#### AUDIO

1 x Soundcraft Series5 56ch console; 1 x Soundcraft SM12 48ch console; 16 x Turbo TMS3's + amps; 18 x EV SX200's + amps; 16 x CA3831 active wedges (10x sends); 3 x Klark DN360 graphics; 4 x dbx 160 comp/limiter; 1 x Yamaha D1030 system delay; 12 x dbx 903 comp; 6 x dbx 904 gates; 3 x Yamaha SPX990; 1 x Lexicon PCM70; 1 x Denon 610F CD/CASS; 1 x Tascam DA20 DAT recorder; 1 x 40ch microphone + stand kit; 2 x Shure UHF radio mics; 1 x Shure SCM810 auto mixer; 1 x Shure DFR11EQ feedback reducer; 4 x Lode-star 2 tonne motors; 1 x multicore system (36ch x 4 isolated splits)



*A Funny Thing Happened On The Way To The Forum* marks the 15th year of the summer musical at the Victorian Arts Centre. Produced by Simon Gallaher's company Essgee Entertainment, *Forum* is a departure from the likes of Essgee's previous production's such *HMS Pinafore* and *Pirates of Penzance*...and that's a good thing.

*Forum* is a relatively 'low tech' show - it doesn't rely on special effects or moving sets. The action is played out in front of three houses which take up most of the stage. There are no moving boats of crashing chandeliers in this show. Even the lighting and audio are passive. The cast is superbly radio-miked, and apart from a few missed cues in the performance I saw the sound adequately fills the State Theatre. Lighting is low-key with few effects. On the whole the design calls for bright scenes with minimal stand-out colour.

The story revolves around one main character who plays the role of narrator and chief protagonist. On Broadway this part has been played by the likes of Whoopi Goldberg and Nathan Lane. In Melbourne, the role belongs to ex-rocker and Essgee veteran, Jon English.

The supporting cast features some of the greats of the local scene such as Tina Arena's old singing partner from the Young Talent Time days, John (then, Little Johnny) Bowes, the 'Is Don Is Good?' Joggomobile guy Tommy Dysart, and his wife also from the famous 3-O-G-G-O ad Joan Brackenshire, among others.

Modern and local references are worked into the script for added comic value. I had anticipated a Bill Clinton or Viagra reference and was not disappointed - 'I'll let you guess which one got a mention. Interestingly, one of the biggest laughs in the show came about when English's character was telling Tommy Dysart to 'go'. They couldn't resist putting in a G-C gag, much to the delight of the audience.

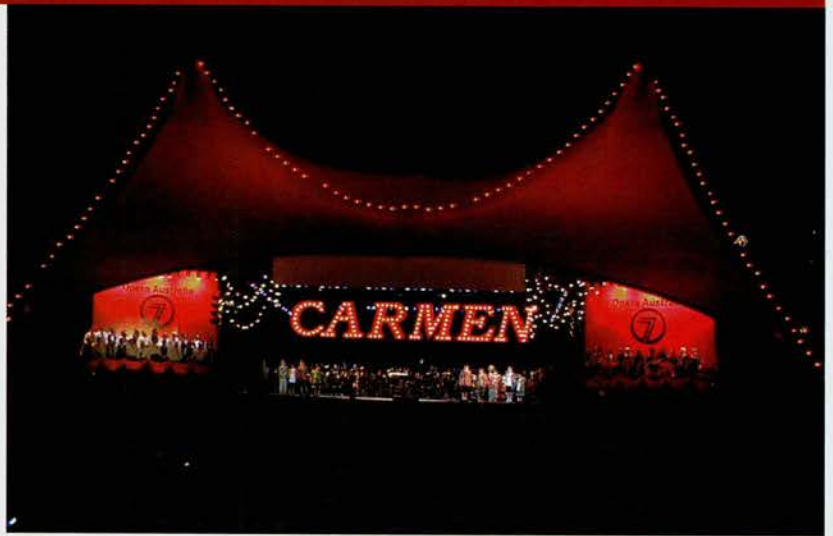
*Forum* has been playing to good sized audiences, and from the guffaws of laughter coming from the audience, I got the impression that there is still a place for bawdy, Carry On style humour in Melbourne theatre.

I opted to attend a Wednesday matinee performance having to contend with the usual herd of Nannas, and also a smattering of school holiday kids. As I headed out to the foyer at interval, I wasn't at all surprised to see a young woman being stretchered out by paramedics. The thought ran through my mind, "Why didn't I think of that?"

At the end of the show, I wandered past the merchandise stand and while I wasn't suckered into buying a *Forum* T-shirt, coffee mug, or libretto, I did manage to part with \$12 for a program. S\*2! And then a funny thing happened on the way to the carpark when was told I had to pay the entire day rate because it was six minutes into the next hour!

● **Mandy Jones**

# Clarity in the Domain



## CODA AUDIO USE NEW MEYER SYSTEM

**C**oda Audio Services have been expanding their inventory of Meyer loudspeakers over the last 3 years. This has been principally geared towards the large-scale concert, festival & event market that Coda is becoming renowned for - including the Sydney Festival Domain concerts, Adelaide Festival, WOMAD - Adelaide, Sydney Gay & Lesbian Mardi Gras etc.

In December Coda Audio Services received 4 x Meyer MSL-6 full-range self-powered loudspeakers and 4 x Meyer PSW-6 self-powered cardioid sub-woofers. These were used in the Sydney Domain for the Sydney Festival concerts - Symphony in the Park, Jazz in the



Domain and then for Opera Australia, their production of Carmen, also in the Domain.

Audience attendances for these concerts are estimated up to 135,000 people for the Symphony concert and 120,000 for the Opera. To cater for these numbers two FOH and 7 delay towers were

used. The FOH towers consisted of 2 x MSL-6, 4 x MSL-4, 4 x MSL2a and 2 x PSW-6 speakers per side. The delay towers, spread in a rough semicircle about halfway through the audience, all had 2 x MSL-2a's and 1 x MSL-4. In addition to this CQ1's were used as side-fill and USM-1 for foldback. The MSL2-s & USM's were powered by Crown amplifiers.

FOH mixers were 2 x Midas XL200's. There were almost 90 condenser microphones covering the orchestra with Shure UHF radio microphones for the MC etc. For the Opera in the Park there was the additional requirement of 11 x headworn radio microphones as the production was a semi-staged version and the principals required freedom of movement. The capsules used were DPA4061 with transmitters/receivers being predominantly Shure UHF U4's and the new Vega UHF 672 series.



"In the past the stage performers have suffered from hearing spillage from the FOH towers but due to the cardioid pattern of the PSW6's, this was greatly reduced this year" said Leigh Williams, Coda's Administrator and Radio Mic. expert!. "It seems that most sound was directed at the audience and Stage could hear very little of FOH and were therefore unaffected by it. This didn't apply to the

*continued on page 69*



## FULL HOUSE :: THEATRE NEWS

- The recent Sydney Festival has made a reported loss of \$740,000. A new festival Director **Brett Sheehy** takes over in 2002. Sheehy is successor to Leo Schofield.

- Theatre veteran **Richard Wherrett** will direct a Company B Belvoir Street production after a 20 year absence. Wherrett will direct the world premiere of *Burnt Piano*, a new Australian play by

Justin Fleming. The set has been designed by Brian Thomson, with lighting design by John Rayment and costumes by Michael Wilkinson.

- Troubled musical *Showboat* suffered another set-back recently with the tragic death of one of its stars. The death of Marlon Brand followed a domestic incident with his wife, fellow *Showboat* cast member

Rebecca Jackson Mendoza. In what appears to have been a fight over custody of their two year old daughter, Jackson Mendoza was repeatedly stabbed in the chest by Brand. The body of 28 year old Brand was found hanged in a nearby toilet block the next day.

- The annual **Festival of Perth** is underway promising a diverse program in a range of indoor and out-

door venues. This year's festival marks the final one for Director David Blenkinsop who has headed the annual event for the last 23 years. Highlights of the program include a reworking of the story of King Lear by Japan Foundation Asia Centre, Leah Purcell's successful production of *Box The Pony* and Black Swan's production *The Year of Living Dangerously*.

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# Much Ado About Nothing

an audio report by Mandy Jones

*Much Ado About Nothing* is the latest Shakesperean offering to Melbourne audiences from Glenn Elston, Greg Hocking and Barry Janes. Since 1987, Glenn Elston has been bringing outdoor theatre productions to Australian audiences.

Audio for the show is being run off a Soundcraft 32/8 mixer with 12 channels of UHF radio mics, 4 channels of VHF, and 8 SM 58 mic's. Speakers are a mix of EV/Deltamax, Meyer 650 subs, and Bi-amp wedges for foldback. All audio equipment is supplied by Troy Balance including Yamaha amps, Klark Teknik Graphics and Denon Playback.

"Because of the musical backing tracks and live musos on stage we needed the radio mics to get over the top of that and make a reasonable mix out of it," said Michael Gilders, Head Electrician. Finding actors that are able to project is a lot harder these days because everyone is used to being fully miked, even inside a very small theatre. It's a very big area to project in, and it's not an acoustically perfect environment - it's a garden.

"The biggest advantage of the radio mics has been because we're in the gardens there's not a lot of other radio traffic. Other than that it's been the same dramas you get with any radio system. You've got to have the reliable battery supply. We had some early batches of batteries that weren't up to scratch. You can spend as much money as you like on a PA system but half a dozen dud batteries can really make a difference to the show."



There did seem to be some problems with a couple of the radio receivers at the performance I attended. Inconsistent audio levels and drop outs occurred on and off, not helped by some bad radio mic technique by some of the actors. Cast members hugged and blocked dialogue getting through to the mics, or the mics picked up the sound of leather and other costumes being rubbed together.

Ask anyone who has crewed on an outdoor show and they all say the same thing - 'It's the little things you take for granted in an indoor venue that you really miss'. Michael Gilders agrees.

"The extra difficulty of an outdoor show is having to run all the extra things like toilet lights and aisle lights, house lights, power for the candy bar so they can run three urns. Things that you normally don't have to think about. At times it is closer to a circus than a theatre show, or a tour that doesn't go anywhere."

*Much Ado About Nothing* plays at the Royal Botanic Gardens until the end of March

Turn to page 86 for a lighting report

#### Production Credits:

Director Glenn Elston Musical Director Paul Norton Stage Manager Tammie Iliopoulos Head LX Michael Gilders ASM Matthew Scott Sound Operator Brian McMahon Lighting Operator John Boy Davidson Lighting Designer Tim Newman Production Co-ordinator Elena Eremin

## FULL HOUSE::THEATRE NEWS

● The Whitehorse Centre in Melbourne's south east will be the new home to a professional theatre season recently dropped by the Alexander Theatre at Monash University. The season will be a part of the network of touring productions from companies such as MTC, STC, SASTC, Playbox and other subscriber based state theatre companies. Monash University pulled the Alexander from the touring program after having to subsidise the season to the tune of \$170,000. The City of Whitehorse have stated they are not expecting to make a profit out of the season

and will contribute \$25,000 towards it. The theatre is considerably smaller than the Alexander in both stage and auditorium size and it is yet to be known whether all planned productions will be able to be accommodated by the centre's facilities.

● Police in Western Australia have been called in to monitor an outdoor performance of *Lady Chatterley's Lover*. The production adapted from the DH Lawrence novel by Australian playwright Julia Britton has been touring Australia since 1995, and features a scene where the two lead actors appear nude and engage in

simulated sex. Under-cover police have been attending the performances to gauge the audience response and may have to prosecute if anyone complains about the explicit nature of the play. Media have labelled the production "grass roots theatre" and "A Schlong Day's Journey into Night" and just about every other tacky pun you can come up with.

● Newcastle's Young People's Theatre has re-opened after being destroyed by fire three years ago. The \$1.2 million theatre has been built according to fire and earth-

quake regulations and features fire resistant doors, seats and carpet made from fire retardant fabrics, and an advanced alarm system.

● Black Swan Theatre Company has appointed Duncan Ord as General Manager. Among Ord's first duties will be to develop a five-year plan for the company which has had financial troubles over the last few years, including finishing off 1998 with a \$100,000 deficit. He will also continue lobbying the Western Australia Government for a 500 seat theatre to house the company.

**CODA AUDIO STORY**

*continued from page 66*

chorus members at the Opera, who were on a thrust stage right next to the FOH towers, so they relied on orchestral foldback and the visual monitor of the conductor."

Ron Barlow is a freelance

Sound Designer and Engineer with many years experience in Australian theatre. He was chosen by Michael Wilkie and Philip Murphy of Coda Audio as the F.O.H operator for the Domain concerts.

"The PSW-6's were definitely the star performers of the speaker set-up, said Ron. "Previously we had had problems with the balance on stage, there was too much low frequency which disturbed the performers, but the PSW-6s' cardioid pattern dramatically reduced spillage

*continued on page 70*



**DATES OF DISASTER**

Show disasters come in many shapes and sizes. Mine was because I had a client who you'd typify as a difficult performer. It worked in my favour, as he utterly insisted I provide production for all his shows, and this one was a Major Convention, with a two day setup.

Naturally I displaced a major sound and lighting co (less major these days), who typically did these kind of shows for about \$20,000. My fee, via the artist, was \$2,500. The remaining production crew were all up in arms at some infidel (me) coming onto their patch, so they made life difficult. My multicore wouldn't stretch the required 67 metres down the service hall, so I had to discretely gaff it down the side of the ballroom. That was sinful, they told the event organiser.

The organiser had already seen me about the mix position, and she had been relieved that my humble 24 channel mixer didn't require the floorspace of a PM 2000 and four effects racks the other mob used. The extra table for eight that she had fitted in made up for the multicore aesthetics.

The loaders were all snorting half their earnings, the nasal floss was supplied by the production manager who needed a nose bag for the amount of coke he was using. Being an outsider inflicted on this cosy community, they took their time with my gear which had to be carried some distance. Amp racks ended up at the mix position, dimmers in the foyer, and at one stage it took me an hour to find the stands case.

For some reason the event manager was getting a lot of extra suggestions from the crew, about the PA and the FOH truss being moved, and about extra gear of one kind or another being required. All designed to stretch my resources. I just dug in and said with a smile, "Let's have the run through and see how it all works out".

My performer wasn't to know about the war of nerves, I was there to make him look and sound great. The second priority was to make sure the convention lectern mic worked right, and that the stage and room were all warm and properly lit on cue. The A/V audio would work a treat, it's always easy to amplify taped material.

It wasn't a hard gig, but the mean spirited crew made it a stressful one. There are so many ways to try to make a production company look bad. An example: one crew member was required to dim up and down the houselights on a talkback cue. He banged them up and down, 100% on or off. Anything to make me look bad.

I kept a mental note of who the ringleaders were, and went out of my way to be helpful when they inevitably strayed onto MY patch later on!

Naturally these days people like that have been rejected by our industry and can usually be found working as truck drivers - or on the dole.

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## CODA AUDIO STORY

continued from page 67

allowing considerably more level at low frequencies without the risk of feedback

"The MS-6's seemec a little harsh at first, especially compared to the smooth sound of the MS-4's, but with a little tweaking around 3kHz they performed well, penetrating deeply into the audience area up to and beyond the relay towers."

Fon also mentioned that at another recent event, he was able to effectively mix from a position only 3 metres behind the FSW-6s

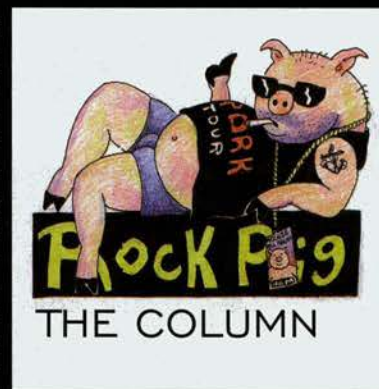
• **Cat Forcer**



Fire has damaged the Empire Theatre in Melbourne. The Empire Theatre underwent major refurbishment last year as the new venue for Channel 7 variety football show *Live & Kicking*.

Initial reports suggested the fire may have been deliberately lit. Spokesperson for the Empire, Ann Whitelock said that no cause had been ascertained as yet. It is believed the fire was started at the front door of the theatre in Peel St, Windsor. Fire crews managed to contain the fire to the foyer area. Ms Whitelock was unable to comment on damage estimates but said that it is business as usual, and repairs are well underway.

Y our favourite PIG has been inundated with occasionally useful emails since this column debut'ed last month. Thanks in particular to Sheila Y, who suggested I seek out my feminine side. Said correspondent says that girl rockers Nitocris are the greatest new thing, and that only JJJ has played their music. Is this news?



◆ The street press continue to bleat about the decline of the music scene. I differ. Take Sydney for example. It has more live music on offer on a given Friday night than San Francisco. Its true that small, uncomfortable, non airconditioned and usually grotty pub rooms are generally closing down. Good riddance! On the other side of the ledger, Macquarie University just opened an expansion of their Union Bar which will accommodate 1500 punters in comfort. With a real stage too! It's almost totally to be utilised for gigs. There are squillions of Club gigs out there. Good bands get gigs. It's true the scene isn't as vibrant as it was in 1982, but that was a statistical blip.

◆ I found the gig diary for 1982 the other day. In it, I noted rough crowd numbers for every gig. We ran a production agency, so some weekends we had 10 gigs a night running. Guess what? Disregarding 'socials' and school/campus shows, 'commercial' gigs in pubs and clubs lost money 9 shows out of 10! This shows the true state of that 'statistical' blip which was the Great Australian Rock Explosion of the late 1970's and early 1980's. It was fuelled by the occasional HUGE profit from a gig by the likes of The Angels or Cold Chisel, or a cheap act in a big venue. The real action was orchestrated by the booking agents who had absolutely no hesitation in burning a venue owner. And burn they did, night after night. Until in the end, venue owners took stock and realised you only make money if you are smarter than a booking agent.

◆ Old band corner: Bakery, Tully, Lobby Lloyd's Coloured Balls, La De Da's. Remember any of these?

◆ Favourites: Liking The Fauves at present, transitioning themselves from being very crap to being filthy commercial. Hating *beyond belief* those Perth children Jebediah. Can't fathom how such an amateur band can get so much airplay. Pathetic group. Loving the new sounds from silverchair. Aus rock lives!

◆ Get (a new) Head Dept: much as The Pig has tried not to report this, that shallow pub rock outfit of the 1980's The Radiators (known as Big Swifty in the 1970's) are STILL working. Getting \$20 vs on the door they somehow keep getting shows. Our operative reports that the support band is usually better. Fry's Old Farts On Heat would even be better!

◆ Speaking of agents- (must we?) they are happily raking in the offers for next new years eve. \$20,000 for a second rate covers band who normally get \$2000? It's true. Production co's will be charging more too.

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### M250 Optic

- MSD 250/2 lamp - 250W - 2000 hours life - 8000K - 17000 lumen
- 450° Pan - 270° Tilt
- 16 bit Movement Resolution
- 6 metal and 2 dichroic rotating gobos all interchangeable and indexable on 540°
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- 10 colours + white + 7 bi-colours
- Linear dimmer from 0 to 100%
- Rainbow effect adjustable in speed
- Adjustable strobe
- Remote reset via DMX
- Channels control: 6 channels = 8 Bit resolution; 8 channels = 16 Bit resolution; 9 channels = 16 Bit resolution + dedicated channel for dimmer
- Internal power factor correction - Absorbed power 1.4A
- DMX512 standard
- Multifunctional display: projector assignment - 8 or 16 Bit selection
- 6/8/9 channels control selection - projector working life time-meter, lamp working life time-meter - selection of the other projector functions

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- MSD 250/2 lamp - 250W - 2000 hours life - 8000K - 17000 lumen
- 450° Pan - 270° Tilt
- 16 bit Movement Resolution
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- Rainbow effect adjustable in speed
- Black light filter
- Linear dimmer from 0 to 100%
- Linear frost
- Adjustable strobe
- Remote reset via DMX
- Channels control: 6 channels = 8 Bit resolution; 8 channels = 16 Bit resolution; 9 channels = 16 Bit resolution + dedicated channel for dimmer
- Internal power factor correction - Absorbed power 1.4A
- DMX512 standard
- Multifunctional display: projector assignment - 8 or 16 Bit selection
- 6/8/9 channels control selection - projector working life time-meter
- Lamp working life time-meter - selection of the other projector functions.



# LIGHTING

edited by Catriona Forcer

compared:

## BUDGET 12 CHANNEL DIMMER RACKS

**B**efore any dimmer comparison can even begin, dimmer racks are needed, but running budget dimmer racks to earth in Australia at the moment turns out to be a rather difficult task. The main reason for the current scarcity of dimmers is the recent requirement for CTick Electromagnetic Interference (EMI) compliance on all electrical devices sold, necessitating modifications or in some cases complete redesigns of many products including dimmer racks.



Test Set-up

Of the budget dimmers actually available for purchase when this comparison was undertaken in early February 1999, the Jands GP12WM was the only one bearing the CTick.

- Dynalite have a compliant dimmer in the late stages of development, but don't see it as a budget-priced unit.
- LSC's compliant and widely discussed ePAK is electronically complete but the controlling firmware is still under development.
- Jands GP12c a redeveloped version of the GP12 based on the technology of the GP12WM is about to become available. The production prototype is one of the dimmers in this comparison.
- Bytcraft are still awaiting clarification from the Australian Communications Authority, who set the EMI standards, as to whether or not three phase powered dimmers even fall within the CTick requirements.

The other reason for the shortage is the recent decrease in the number of dimmer manufacturers. LSC's current difficulties have been covered in the previous two editions of Connections.

*continued on next page*

### MY FAVOURITE GEL COLOUR

#### CAM MCKAIGE

about to tour with Suzie de Marché



"I like Rosco 27, Lee 106, Lee 139, Lee 195, Lee 181 and open white. They all work well together and can be extremely moody at times, especially 181. Open white works well with all of them. I particularly like the starkness of some of them. If you put Rosco 27 and Lee 106 together it's a really good contrast."

### CALVI GOES IT ALONE

Luminary and large but cuddly lighting designer Francesco Calvi has graciously departed his long term previous charter at A Major Production Company to cut his craft alone. "It is very amicable" Calvi says of the departure. "They've been really good to me and Eric has really helped establish my career". Calvi inhabits a riverside pad at Wisemans Ferry, north of the Connections Lighting Editor's bushland setting, with his new wife Sue. Calvi is lighting corporate, fashion film and party objects but is not limiting his scope. Connections has long admired his work, and his ability to put artistic concepts into financially realistic timelines. In this way he reminds us of the great and sadly departed Roger Barratt.

We wish Calvi Corporation great success for the future. Contact: 0408 338-118, fax +61 2 4566-4790 or fcavi@bigfoot.com

### INSIDE LIGHTING



#### DIMMER COMPARISON

page 75



#### SALTIMBANCO CIRQUE DU SOLEIL

page 80



#### MERYL TANKARD LIGHTING POSSESSED

page 84



#### SHAKESPEARE IN THE PARK

page 86

### BUYERS GUIDE:

MOVING LIGHTS



## compared:: BUDGET 1 2 CHANNEL DIMMER RACKS

continued from previous page

### THE DIMMERS

The racks compared here are:

- Bytesize TRV 12 x 2kw from Bytecraft
- GP12WM 12 x 2.4kVA from Jands Electronics
- GP12C 12 x 2.4kVA (production prototype) from Jands Electronics

These are very different dimmers in almost every way. The Bytesize TRV is a direct descendant of the portable, "intelligent" dimmers originally built for Expo '88 and includes the software to run as pre-programmed, stand-alone architectural dimmers not to mention selectable dimming curves, proportional patching, fault reporting and there may even be a game of Tetris hidden in there amongst the menus.

The Jands GP12WM was designed from the ground up to be a basic wall-mounted installation dimmer, being part of a system that includes mounting brackets, stand-offs and even an integrated 24 circuit load-patch system.

The Jands GP12C, whilst looking a lot like the old GP12 rack-mountable dimmer, bears a remarkable electronic similarity to the GP12WM.

## new products::

### VISION-LITE

Vision-lite is a new projection tool designed and manufactured by a German company Light-visions. It's selling points are the five rotating slides it can carry as well as the long lamp life. ITI-Image Group are the Australian distributors and their Manager Norbert Schmiedeberg explained the product:



"This projector is predominantly designed for exhibitions, promotions, events, retail although it can be used for standard lighting facilities. It uses a high powered HIT 150 lamp giving a 12,000 lumen output and a lamp life of 6000 hours. The filter wheel

has five filters plus white and there is also a slide wheel which can take up to 5 standard 35mm slide. Most units use gobos which are much more expensive to produce. The slides can be rotated as they're projected and the lens has a focusing mechanism - motor zoom so I can position it accurately.

"The unit itself is programmed by an infra red remote control and once the programming is completed, it'll just keep repeating it's sequence. I can programme up to six shows." The projection range is up to 10m with projection sizes up to 3m in diameter. Pan is +/- 90 and tilt +/- 450.

A DMX controllable model will be available soon with the current models easily upgradeable.

"This unit has already sold well in the US and UK," said Norbert. "In the UK every new McDonalds has one to project stars and the logo in the area where the children play. People like it's design as it's not just a black box that hangs from the ceiling, it's very elegant."

Expect the Vision-lite to retail for \$5000 approx. plus tax (DMX adds about \$250).

Call ITI-Image Group +61 2 9477 5709.



BYTE TRV

### THE COMPARISON

The tests were conducted by Peter Dann who has around twenty years of electrics experience, including lecturing in Lighting Design and Technology and myself with around thirty years in electrics. The Western Australian Academy of Performing Arts kindly allowed us the use of the lighting workshop where students undertake training for their restricted electrical licences. This facility provided us with test benches,

RCD protected power, an oscilloscope, a selection of DMX control desks, an array of theatre luminaires and cables to use as test loads and a bar to hang them on.

Our comparisons are based on the kind of information we would want if we were choosing to buy a rack of dimmers for our own venue. We have also taken into account our experiences with dimmers that looked OK at the trade show or in the brochure, but drove us berserk for years with their shortcomings.



GP12C

### ABOUT THE TESTS

All tests were carried out using the same RCD-protected three phase supply on a warm Perth afternoon with a room temperature of around 32Celsius. Mains voltages were measured at Red Phase to Neutral 242v, Yellow to Neutral 242v and Blue to Neutral 245v. These are pretty good voltages for Perth where 250+v is still a common occurrence despite the "change" to 240v over a decade ago.

The DMX source used for all tests was a Jands Event 48 which has a long history of reliability and trouble-free connection to a wide variety of dimmers, robotic luminaires and decoders.

### SNAP LOAD

This test was designed to examine the response of a single dimmer channel to the high inrush current which occurs when a cold lamp filament is snapped to full. Lamp manufacturers quote a typical

# BUDGET 12 CHANNEL DIMMER RACKS

	Bytesize TRV	Jands GP12C	Jands GP12WM
Manufacturer	Bytcraft Pty Ltd 03 9587 2333	Jands Electronics 02 9582 0909	Jands Electronics 02 9532 0509
Recommended retail price A\$ tax inc	\$3,538	\$2,995	\$3,195
Packing	Good	Mounting brackets loose in box	Good
Manuals	Version 4.3 (1990) manual supplied for version 5.9 software	1995 CP12 manual supplied which covers most features	Complete manual and installation instructions for contractors
C Tick	May not be necessary	Yes	Yes
Form factor	Portable	Rack mount	Wall mount only
Enclosure design	Circuit breakers and knob protrude beyond case. Mains inlet prevents stacking	Knobs and fuses protrude, rack needs to be enclosed for transport	Good protection for controls and circuit breakers
Accessibility for service	Load terminations and triacs excellent. Trimpots inaccessible	Load terminations cramped. Triacs inaccessible. Trimpots excellent	Load terminations and trim pots excellent. Triacs reasonable
Mains input	3 phase 40 A/phase or single phase 120A	3 phase 40 A/phase	3 phase 40 A/phase, single phase 120A, 3 single phase feeds or 3 phase delta for 220v in USA
Mains connector	Wilco 5pin 52A	Wilco 5pin 32A	Contractor terminated
Mains isolator	RCD Circuit Breaker	No	No
Control input	DMX 512 in/out & AVAB in/out via XLR 5 connectors: 0-10v Analog via DB 25 socket	DMX 512 in/out via XLR 5 connectors	DMX 512 in/out via connector blocks
DMX termination	No	Switch selected	Internal jumper selection
DMX allocation	Any 12 channels at any proportion	Blocks of 12 in 12 channel increments (1-12 or 13-24 etc)	Blocks of 12 in 12 channel increments. (1-12 or 13-24 etc)
Last DMX state held on signal failure	Yes. Error indication on front panel	Yes. DMX indicator flashes	Yes. DMX indicator flashes
Output Adjustments	Top and bottom level trim for all channels	Top trim per phase.	Top trim per phase. Bottom trim for all channels.
Test Functions	Full suite of test functions	Channel and Rack tests	Channel and Rack tests
Test Access	Menus, buttons and knobs. Manual required	Rotary DMX selector knobs also select test modes. Test mode summary on lid of rack	Rotary DMX selector knobs also select test modes. Manual required
Dimming device	Triac	Triac	Triac
Rise Time 2kw load at 90	350 sec	350 sec	350 sec
Acoustic Noise	Quiet	Noticeable	Quiet
Output protection	Circuit breaker	FRC fuse	Circuit breaker
Overload trip 3kw	> 15min	> 15min	> 15min
5.75kw	126sec	n/a	80 sec
4.25kw	63 sec	n/a	30 sec
Dimensions WxHxD	200 x 515 x 356mm	433 x 132 (3RU) x 255mm	462 x 465 x 158mm
Weight	25kg	15kg	25kg

figure for cold lamp resistance of 1/17th of the operational resistance, although inrush currents are generally only ten times the operational current when such things as cable and supply impedance are taken into account. We were looking to see if the circuit protection device (fuse or circuit breaker) would trip out on a snap-to-full cue, a common phenomenon in some circuit-breaker protected dimmer designs. Dimmer designers respond to this problem by either using a circuit-breaker with a slightly slower response or by monitoring and limiting the dimmer output current. We tested dimmers first with their rated 2.4kW load and then a deliberate overload to 3kW. Loads were tungsten halogen strip lamps as used in cyclorama floods on 10 metre cables and were allowed to return to room temperature for five minutes before each test.

## OVERLOAD

To simulate the accidental abuse handed out to dimmers we deliberately overloaded a channel to 3kw and measured the time elapsed until the circuit protection device tripped. (We don't recommend that you do this at home.) In all cases there was no trip after 15 minutes of overload and the test was terminated, even though in the case of the Bytesize TRV we could smell the insulation cooking on the choke and saw some short-lived after effects in the form of asymmetric triac firing which persisted until the dimmer had cooled for about ten minutes. The circuit breaker protected dimmers were subjected to further overload tests with loads of 3.75kw and 4.25kw.

## RISE TIME

The modern thyristor (Triac or SCR) dimmer has one fairly severe drawback in its performance in that it dims by switching on the current to the load part-way through each mains cycle. Cutting the leading smooth-part off

*continued over*

## Lighting::PRODUCT COMPARISON

### compared:: BUDGET 12 CHANNEL DIMMER RACKS

continued from previous page

a mains cycle produces a current with a very rapid turn-on time which generates both mains distortions and EMI. Chokes are included in dimmers to slow down the rapid switch-on (rise time) of the chopped current. The longer the rise time the less EMI and mains distortion produced.

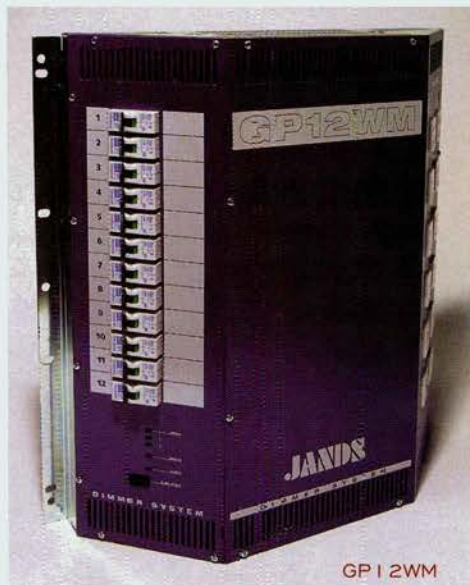
We tested each dimmer with a 2kw lamp load, adjusting the fader until our venerable BWD

824 oscilloscope showed a mid-cycle (90 degree) firing angle (at around 60% on the desk), measuring rise time on the oscilloscope using the time-base scale. For simplicity we have used the time for the complete voltage rise rather than the standard figure which covers only the 10% to 90% part of the slope. While the comparisons between racks are valid, our method typically gives a figure roughly double the rise time as measured by the standard.

#### ACOUSTIC NOISE

We attempted to measure the noise from a single channel on each rack using an Ivie spectrum analyser / level meter, but due to the spectral distribution of the dimmer noise and background noise levels in the workshop we were unable to get clear results. Given our time constraints, relocating our entire test set up to an anechoic chamber for this one test didn't seem very practical.

When it comes down to making a choice as to which of these dimmer racks to use the decision needs to be based more on application than anything else. All of these dimmers appear to do a particular job well: Bytesize TRV is a very flexible and sophisticated dimmer for the money but is still somewhat dearer than the Jands GP12C which can probably do an equivalent job for many basic dimming applications, whilst the Jands GP12WM is part of a well conceived and reasonably-priced installation system where fixed dimming is required.



GP12WM

### MY FAVOURITE GEL COLOUR

#### NICK SHOLEM

currently on tour with Blondie



"I tend to use Lee and I really love mixtures of CT orange and CT blue. I've been doing that for years because of doing television stuff with Sting, it works really well. It was also ideal for doing the stage show for Blondie.

"For combinations of side lighting it makes it interesting. It's also flattering."

## new products::

### 500 BRIGHT CONTROLS SERIES

The new 500 series consoles from Strand have been completely re-designed for increased usability. The console surfaces have been reshaped and new keycaps and fader handles been created.

Version 2.2 software released with the new desks offers a host of new features and improvements. Enhancements include a 3000 event SMPTE time code cue sheet, expanded moving light fixture libraries, 16-bit trackball operation and dimmer status report.



All i series consoles feature Pentium II processors which allow expanded channel and dimmer capacities when using ShowNet networking. All systems now support up to 8,192 DMX outputs with up to 6000 control channels and 2000 attributes.

Call Bytecraft +61 3 9587 2555, +61 2 9550 3955.

### FOCUS

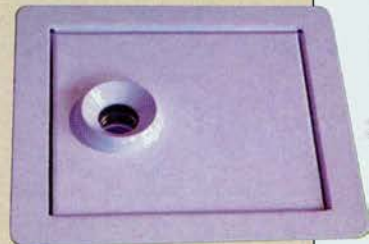
The FOCUS is the first of a new range of weatherproof architectural fixtures from Space Cannon. It features their patented colour mix system along with remote focus and dimmer powered by a 1200w or 1500w MSR lamp. The beam diameter is adjustable from 1 degree (for sky beam effects) through to 40 degrees (for building wash and cyc work) via standard clip on Par lenses. This makes the fixture extremely versatile for hire companies wanting a flexible fixture for a variety of uses.

Call Coemar De Sisti Australia +61 3 9467 8666.

### AVR COLOURMASTER

New architectural product the AVR ColourMaster Downlighter system is now available from distributor Universal Lighting & Audio. The ColourMaster comprises a standard 12V 50W MR16 lamp with a dichroic colour wheel of six colours plus white which is designed for flush mounting into ceiling spaces. Compact easy to install, available in a black, white or standard powder coat colours, the AVR ColourMaster Systems can be controlled from a manual or programmable wall plate or via DMX. Ideal for foyers, boardrooms or anywhere an atmosphere is required.

Call ULA +61 7 5532 9922.



### ROSCO SHRINK MIRROR SCRIM

After many years of not being available, Rosco shrink mirror scrim is back. Available in rolls 1.4m x 9.1m, it is designed to be tacked to frames, then heated so that the plastic shrinks to yield a smooth, mirror-like surface with optical properties as close to glass as low cost plastic can come. Light it from the front - it's a reflective mirror. Light it from behind - it's a see-through scrim.

Also available is the Rosco Silver Shrink mirror.

Call Rosco Australia +61 2 9906 6262.

### PIGI DOUBLE FILM SCROLLER

Large format projection specialists, The Electric Canvas have added to their stock of PIGI 7kw film strip projectors with the latest generation of equipment from the French manufacturer ETC Audiovisual. The new projector features a double film scroller that can rotate continuously in either direction opening the door to a multitude of new effects and applications for outdoor or indoor events of all kinds. For details call Peter Milne at PM Production design & Management Pty Ltd on +61 2 9437 9588.

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# SALTIMBANCO™

## CIRQUE DU SOLEIL®

"Luc Lafortune sets the tone for Cirque du Soleil acts by 'sculpting spectators' emotions and reinventing the quality of light. It is the chiaroscuro, he believes, that is the lighting designer's anvil. A contrast in hues, angles and beams draws the focus and transforms a scene from humorous excitement to tragedy, influencing the spectator's vision of the show."

When Cirque du Soleil arrived in Australia for the first time, pitching their Chapiteau in Sydney's Moore Park, it was a bit of an unknown quantity with local audiences. However, using the Sydney Festival as its Australasian launch pad, the Canadian troupe's production of *Saltimbanco* swiftly became a "must-see" show.

Envision a self-sufficient village that moves from country to country, city to city, for 3 years, transporting 130 people, more than 60 containers, hauling 800 tons of equipment across Australia, Singapore, Hong Kong, Taiwan and Japan. This is *Saltimbanco* on tour.

The tour comprises a "village on the move" providing a fully operational kitchen, a school, physiotherapy facilities, offices, warehouses, laundry facilities, generators, water filtration and storage tank, and more. Completely self-sufficient for electrical power, the village relies only on local water supply and telecommunication facilities to support its infrastructure.

Cirque du Soleil has 2 other such "villages on wheels" currently touring simultaneously in Europe and North America with *Alegria* and *Quidam* respectively.

### SALTIMBANCO CIRQUE DU SOLEIL

#### PRODUCTION FACTS

##### The Site

- The infrastructure sits on an area of 20,000m<sup>2</sup>.
- Total set-up requires 8 days, tear-down takes 3 days. 40 technical personnel with 100 local support crew, totalling 6000 man hours are required to accomplish both tasks.
- More than 60 containers carrying 800 tons of equipment are required to transport the entire tour throughout the Asia-Pacific.
- A permanent team of 130 accompany the tour. This team includes 52 artistes, 2 physiotherapists, 4 cooks, a teacher, technical and office staff. 150 locals are hired in support of the tour in each city visited.

Founded in Quebec, Canada in 1984, Cirque du Soleil now has head offices in Montreal, Amsterdam, Singapore and Las Vegas. Since the beginning, Luc Lafortune has illuminated all Cirque du Soleil shows gaining a world-wide reputation as an innovative and creative lighting designer. He has won numerous awards including LDI's Lighting Designer of the Year in 1994 for *Saltimbanco* (the first show was in May 1992).

Technical Director Neilson Vignola is responsible for all the lighting, sound, props,

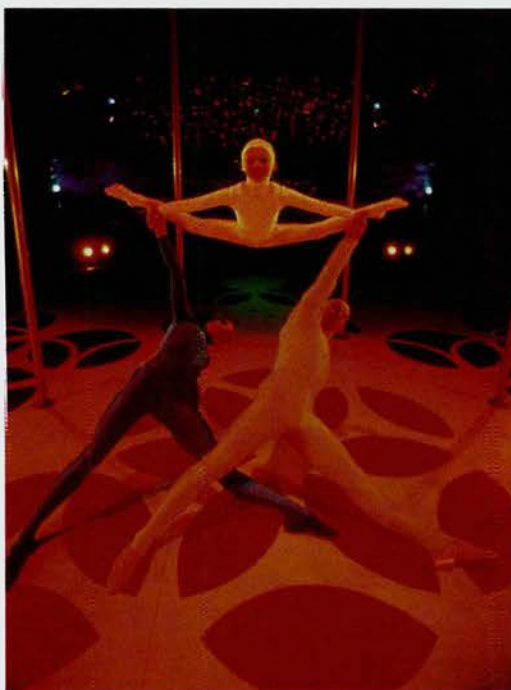


stage and rigging on this *Saltimbanco* tour. Obviously the lighting is constantly changing and is quite different from seven years ago.

"We're always introducing new acts which can make it a bit tricky as we need to be able to put them anywhere in the show," said Neilson. "Sometimes they are replacing an act when somebody is hurt, we have to make sure we can cope with sudden changes in lighting cues."

"We have just bought two new Computite Micron 4D desks. Always we have two running together so if one goes out, the other takes over."

All of the lighting equipment is shipped over from Canada for the tour.



"It will probably get us in trouble one day!" laughed Neilson. "Everything is working at 110 volt so we could get in trouble if something breaks - we'd have to order direct from Canada or the US. Before we left Canada, I bought a lot of lamps and spare parts so we should be all right for the next year."

On the site there are six generators although generally only two are needed to power the site and show. However in hot weather all six are used to power the air-conditioning.

The word *Saltimbanco* is Italian for "street per-  
*continued over*

Photos: Al Seib

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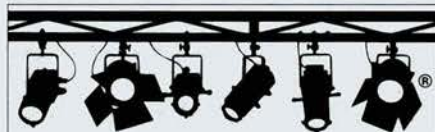
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## SALTIMBANCO

CIRQUE DU SOLEIL

### PRODUCTION FACTS

#### The Stage

- Stage set-up takes 48 hours, dismantling 20 hours.
- The stage weighs 50,900 kilos and consists of steel, aluminium, "Taraflex" and wood.
- "Taraflex" is a special shock absorber used for gymnasiums at the Olympic Games.
- The show technical crew consists of 16 technicians, 4 lighting personnel, 3 stage hands, 2 riggers, 1 prop master, 2 stage managers, 2 sound men and 2 costume shop workers.
- The logistics department employs a tent master, electricians, plumbers, welders, diesel mechanics, site and tent maintenance personnel.

former" and so the set and lighting is loosely based around a street scene.

"That's why we have eight street lights with lamps behind the stage," said Neilson. "There is also a screen which you can sometimes see through we want the audience to see the performers getting ready for the show."

Lighting includes: ETC dimmer racks; 24 Chroma-Q scrollers; 4 GAM TwinSpins, 2 DF50 and 2 F100 smoke machines; 190 Thomas Par 64's (152 gold, 38 black); 40 ETC Source Fours; 2 Strand 2kW Fresnels; 32 Thomas MR16's; 4 Lycian followspots; 24 ACL's; 16 Thomas Ray lights; and 7 Clay Faky Superscans.

"We have two Super Scans above the band, two on the floor and two on the mast," Neilson said. "They

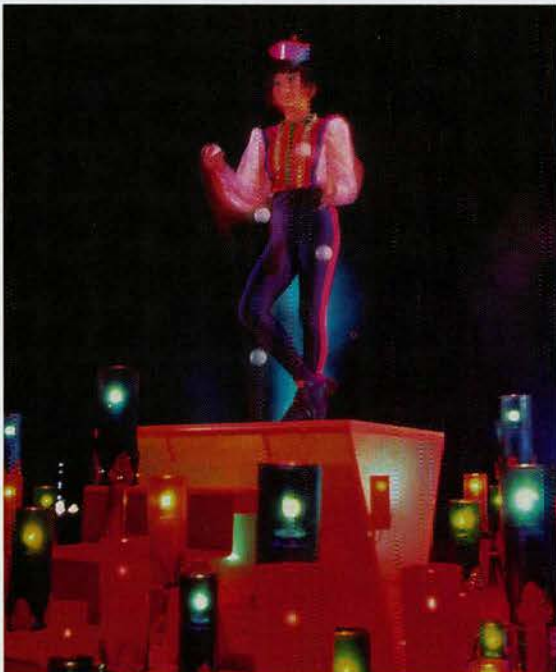
## SALTIMBANCO

CIRQUE DU SOLEIL

### PRODUCTION FACTS

#### The Chapiteau

- The "Chapiteau" (Big Top) and entire site installation are designed and developed at a cost of approximately US\$10 million.
- The seating capacity of the Chapiteau is 2500.
- More than 70 people are required to set-up the Chapiteau over a 12-hour period.
- The Chapiteau comprises 11 pieces of flame retardant vinyl tarp.
- The Chapiteau measures 50.5 metres in diameter and is supported by 25m high steel masts.
- The entrance tent covers a total area of 1200m<sup>2</sup>, the largest for Cirque du Soleil. Another four masts support this reception area, bringing up to a total of eight masts.
- The Chapiteau is manufactured in France by Voileries du Sud-Ouest, internationally renowned for their big tops. The material used for the Chapiteau is PVC canvas.



are mainly used in between acts for effects. They are getting quite old so we have to be very careful with them and we carry two spare units as well as spare parts."

Because the show stays in one city for quite some time there is plenty of time for maintenance - once a week four lighting crew spend four hours on maintenance. They also spend another four hours on 'security inspection' checking all the lamps are well hung and not coming loose.

The tour continues through Australia until the end of October then, after only a three week holiday, the "village" starts again in Singapore.

• Cat Forcer

## new products::

### TAS 360 B

The first in a new range of projectors developed by Coemar for TAS, the TX 360 B draws upon Coemar's NAT TM professional range and provides total 360° movement with accuracy and speed.

Targeted towards the installation market, the compact unit is suited for venues with minimal ceiling heights and it can project across distances as great as 25m.

The TX 360 B is constructed totally from extruded aluminium and sheet steel and allows complete internal access for maintenance and lamp replacement. It uses a Philips 575w MSR/2 lamp and a

quartz "cold" glass elliptic reflector complements high-definition internal lenses. It comes with 4 rotating and 3 fixed gobos, and it has 8 dichroic colours plus white, with variable speed rotocolour effect.

The unit is completed by the addition of variable speed and sequential strobe effect, and a black out shutter.

Call Coemar De Sisti Australia +61 3 9467 8666.

### NEW CHROMA-Q RANGE

Following on from the success of the original Chroma-Q colour changer, A.C. Lighting are launching the new M-Range. Whilst the original Chroma-Q was built for the mass produced market, the M-Range units are designed specifically for less common lighting fixtures.

Original Chroma-Q design elements remain in the new M-Range with design features, electronics, connectivity and components. Operating from existing Chroma-Q power supply units, the new M-Range can be run simultaneously with any other Chroma-Q unit on the same circuit. The M-Range features a gel string length of between 2 and 16 colours, DMX 512 control and individual addresses.

Call A.C. Lighting +44 (0) 1454 446000.

### HIGH END'S NEW POWERLINE

Automated lighting manufacturer High End Systems, Inc. picked the recent Nightclub & Bar trade show in Las Vegas to debut their new Powerline range of automated lighting products. Powerline is a new range of value-priced automated lighting products from the Texas-based manufacturer. The Powerline range includes the Power Scan 150R, the Power Scan 150, the Power Star 150, the Power Color 150, the Power Flash 50, the Power Haze 100, the Power Fog F50, and the Power Cue DMX lighting controller.

According to High End's Director of Sales Grif Palmer, "Our new Powerline generated a ton of interest as well. Inexpensive rotating gobos, automated effects and color luminaires with 150 Arcstream lamps are so well suited to this market. Long lamp life, great price point and turnkey DMX control make the entire Powerline series of fixtures and controllers perfect for these markets. A lot of attendees were very interested to see a value priced hazer and fog machine from High End that included on-board DMX control as well. Our goal to bring a number of technical solutions to a variety of users all through the lighting industry is off to a great start!"

Call GUET (07) 3358 5118.

## MY FAVOURITE GEL COLOUR

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SF1200 125mm 7" lens

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COMPACT 50mm 6" lens



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FRODO 50mm 2" lens

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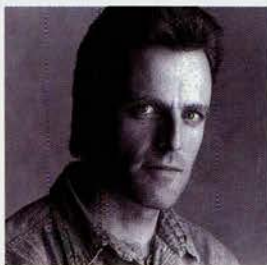
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- VIC - CLEARLIGHT SHOWS PTY: contact John or Sam, Ph 03-9553 1688, Fax 03-9553 4401
- LIGHTMOVES: contact Graham, Ph 03-9813 2955, Fax 03-9813 2466
- THREE ARTS: contact Janet, Ph 03-9818 0397, Fax 03-9819 1351
- QLD - HERKES PRO LIGHTING: contact Tim, Ph 07-3841 4288, Fax 07-3841 5448
- SA - OSMOND ELECTRO-VICS: contact John, Ph 08-8410 1111, Fax 08-8410 3322
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- WA - STAGE & STUDIO: contact Byron, Ph 08-9227 9932, Fax 08-9227 9347
- TAS - K.W.M. CULLOCH: contact Clive, Ph 03-6343 1043, Fax 03-6343 1847

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SELECON

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## STEPHEN WICKHAM LIGHTS MERYL TANKARD'S FESTIVAL SUCCESS



# Possession

Although lighting designer Stephen Wickham occasionally forays into the corporate and theatre world, it is his work with dance that is gaining him a favourable reputation.

"Dance has been my main-stay since I've been working in Australia," said Stephen, who is English. "I started doing dance work with the Chrissie Parrott Dance Company in WA, doing 12 pieces of work for her. I designed Chunky Move's *Bonehead*, the Australian Ballet's production *At The Edge of Night* (which is currently being revived) and quite a lot of project dance pieces.

"I like breaking the rules when lighting dance. Years ago, when I was designing in the UK, there always seemed to be a lot of rules when lighting dance - more than in any other types of lighting. It's been nice to break that down. You don't have to just put lights on side booms or use any particular type of light source. As long as it works for the piece. The most important thing is not to let the lighting detract from the choreography because ultimately you're there to enhance it. At the same time, I love creating strong images that can be very abstract. You don't get that chance working with a script and a play. Dance is purely abstract, particularly contemporary dance which I do the most of and is what I think I do best."

One of the highlights of the recent Sydney Festival was the Meryl Tankard Dance Company's production of *Possession* performed in the Domain.

"I first worked with Meryl on a piece called *The Deep End* for the Australian Ballet at the Melbourne Festival a couple of years ago," said Stephen. "It was the first time she had choreographed for the Australian Ballet and it was a major work. We got on really well and since then she has asked me to do a lot of her work, some of which I haven't been able to do."

Stephen first lit *Possessed* for last year's Adelaide Festival. The production was designed for the large, open space of the Waverley Pavilion with the stage and seating purpose built. The audience was seated on three sides of the stage.

"The whole piece was designed around five ropes which the dancers use to fly around the space," said Stephen. "It was a very wide

stage - 18 metres wide by 16 metres deep - and they fly anything up to 6 metres high within that space. So lighting was a bit of a challenge as it's a huge block of space to light.

"Meryl had already done a workshop of the piece at the Barossa Music Festival where the only lights they had were followspots so she wanted to use them. Generally, I don't like using followspots and Meryl just assumed I would use them. I managed to convince her it could look quite beautiful without them and I think it paid off."

The basic layout of the set is five ropes set out in the pattern of the five dots of a dice. At the back of the stage are some large stainless steel vats, the idea taken from the Barossa Festival where they had to perform in front of the real vats. The design is quite symmetrical, something unusual for Stephen, with a boom on each corner of the stage.

"Each boom gave a diagonal wall of light which cut along the line of the ropes, eight metres into the air," said Stephen. "The vats are

larger than in real life and the band perform on top of the middle one. The shiny surfaces were great for me, I was able to light them from underneath where they pick up the light beautifully. I also clamped some chrome Per 64's on top of them."

In the overhead rig there was a selection of 5X's with scrollers and lots of very narrow Pars on the booms. All around the stage there was footlighting.

"There were a few major problems to overcome with the Domain stage,"

Stephen said. "In Adelaide I had used quite a heavy fog throughout the whole show which really gave the lights a dimension, particularly the light walls. In the Domain, of course, I couldn't get any smoke to hang around. There were no front of house rigging positions anything like what I'd had in Adelaide. So I reworked that by lighting it all from the floor, front edge of the stage. It wasn't too much of a problem because there wasn't a lot of front light used in the original design.

"It was quite a challenge getting the set to fit. The set was too high for the stage so we had to drop it to a lower level from the rest of the stage. It was a bit of a compromise from a lighting point of view."



# NEWS

## TOMCAT'S BRILLIANT ACQUISITION

Tomcat Global Corporation have announced the acquisition of London based Brilliant Stages from Vari\*Lite International. Brilliant Stages is a world leader in custom stage set design and fabrication, with over 17 years experience notably U2's Popmart World Tour.

## CHAMELEON NEWS

Chameleon have supplied the Sydney Entertainment Centre with four Strong Super Troupers II followspots featuring the new electronic ballast. Their stands have been modified by ALE to suit the Centre's requirements.

Chameleon have added two Given 4kW Xenon Searchlights to their hire inventory. These units have already seen action at Sydney's New Years Eve celebrations and the opening night party for The Cirque Du Soleil's Saltimbanco.

Chameleon have also updated their web site - [www.chameleon-touring.com.au](http://www.chameleon-touring.com.au) - featuring new products, links to suppliers and a "lounge" area for notices/discussions.

## CELCO'S INDEPENDENCE DAY

After eight years under the ownership of Helvar/Electrosonic, Celco have re-formed as an independent manufacturer and will resume trading under its former status as Celco Ltd.

Keith Dale will head up the new team as Managing Director and Colin Whittaker will assume his previous position as European Sales Director. They will be joined on the board by Rod Bartholomeusz.

It will be a journey home in more ways than one since Celco's new trading base in Sydenham is close to the south-east London suburb from whence they originated.

New phone no: +44 (0)181 699 6788.

## CLAY PAKY PRODUCTION NETWORK

Show Lighting Australia have announced a new market initiative entitled the "Clay Paky Production Network". Its members, who are undertaking factory training at Clay Paky headquarters in Italy this month, will offer a wide range of Clay Paky products for rent.

Members so far are: Perth AVLA (08) 9221 1888 Melburne Resolution X (03) 9813 2955, Active Lighting (03) 9819 6912 Sydney Avsound (02) 9949 9000, Lots of Watts (02) 9638 0303, Chameleon Touring (02) 9310 5222 Brisbane Visual Innovations (07) 3219 0500 Adelaide Osmond Electronics (08) 8410 1111.

## Possession

continued



Lighting equipment was supplied by Chameleon including an ETC Expression.

Although Stephen was fairly happy with the show he admits he would have liked more time to work on it. In the same week of its opening he also had the opening night of *Carmen*, which he originally designed for Opera Australia in 1995, and the opening of the Netherlands Operas' *Ulysses* at the Lyric Theatre where he is the Technical Manager.

Stephen is currently working on two large scale operas, including *Romeo & Juliet*, and a Sydney Theatre Company production *Betrayal*.

# Expressions of Interest



## Sydney 2000 Olympic Games

### Provision of Stage Trailers and Services Provision of Broadcast TV Crew

The Sydney Organising Committee of the Olympic Games (SOCOG) invites expression of interest from suitably qualified companies with the total end-to-end capability to supply either of the following:

- Stage Trailers, Equipment and Services
- Broadcast TV Crew

for the Sydney 2000 Olympic Torch Relay and the Sydney 2000 Paralympic Torch Relay.

#### Scope of Works: Stage Trailers and Services

- Supply of Celebration Stage Trailers and vehicles, Technical and General Production Crew, Lighting/Sound and other Production requirements, and Entertainment Coordination.
- Supply and Installation of Scenic dressing

The above requirements apply for both lunch time and evening celebrations.

It is not a requirement that respondents offer all of the above elements of scope.

#### Scope of Works: Broadcast TV Crew

- Provide video footage, with sound, of all Torchbearers, Escort Runners and Community Celebrations in the Sydney 2000 Olympic Torch Relay between 8 June 2000 and 15 September 2000.
- Provide footage of the Convoy to show the alternate modes of transport and the different areas through which the convoy travels.
- Supply a twice daily 30 second package with shot list and script
- Provide, install and maintain Camera equipment in the Media Vehicle and editing equipment in the Edit Vehicle using videotape editing equipment which is both portable and mobile
- Provide footage prior to the start of the Olympic Torch Relay for promotional packages, and an edited Master Tape for use in future promotions and by licensee video company

#### In responding companies interested should include:

- Details of Stage Trailers or Broadcast Crews that might be provided
- Company and management information, including company size and organisation structure
- Detailed advice of previous company and management experience in the provision of Stage Trailers or Broadcast Crews and overall large event experience
- Demonstrate an understanding of the requirements by providing an overview of the company's concept of operations for the services they would provide

#### Interested Parties

The purpose of the "Expression of Interest" is to identify a short list of suitable companies who may be invited to respond to a detailed "Invitation for Proposal" for the provision of the above services.

Enquiries in writing to Trevor O'Neill, facsimile 612 9297 2588.

Expressions of Interest are to be lodged, in triplicate, addressing the points outlined above, to:

Trevor O'Neill  
SOCOG Procurement Department  
235 Jones St  
Ultimo NSW 2007

**Closing date for submissions is Friday 19 March, 1999 at 3pm.**

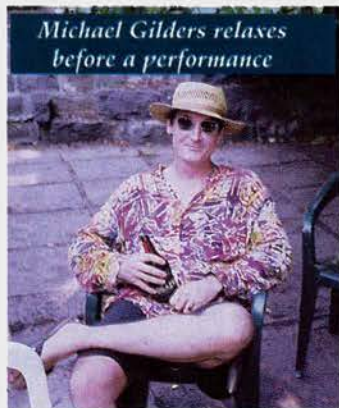
All submissions should be clearly marked:  
**"Stage Trailers and Services", or "Broadcast TV Crew".**

# Much Ado About Nothing



**M**ichael Gilders, is Head Electrician on Much Ado About Nothing at the Botanic Gardens in Melbourne. Much Ado is the latest offering to Melbourne audiences from Glenn Elston, Greg Hocking and Barry Janes. Since 1987, Glenn Elston has been bringing outdoor theatre productions to Australian audiences. He is credited with pioneering outdoor theatre in Australia by delivering a diverse program, and is best known for his Shakespeare productions.

Michael has had a long involvement with Elston's productions having been involved with the garden shows on two seasons of A Midsummer's Night Dream, as well as being involved with running the Athenaeum and The Comedy Club, and prepping and maintaining all the gear for all the other Elston shows in Perth, Adelaide and Sycney.



Michael Gilders relaxes before a performance

This current Shakespeare production has been given the full Rock 'n Roll treatment. The plot is told through two rock bands - where Shakespeare had the men returning home from war to their women, Elston has transformed them into a superband returning

from a world tour to their country and western rivals. Add to that leather pants, mini skirts and lots of guitars and par cans for that authentic rock 'n roll feel.

With so many different activities on in the gardens including Moonlight Cinema, Elston is using the Western Lawn near the Herbarium Building as the site for the performance.

The main action takes place on a 15 x 5 metre portable stage which features purple road cases and a large liquor cabinet as the basis of the set. At each end of the stage is a 6 metre scaff tower used as lighting rig positions for banks of par cans and two Superzooms, and along the back of the stage are four vertical sections of tri-truss complete with chrome cans and Golden Scan IIs.

Two green steel trees have been temporarily installed for a FOH lighting position with sleeves concreted into the ground so they can be easily removed at the end of the season. Michael explains that this was quite a feat to get the Gardens' management to agree to an installation as they are very protective of the look of the gardens.

"The Gardens like to maintain their aesthetic which is basically to make everything look green. So each afternoon we have to set up everything from the scaff towers to the lighting and the PA. Everything that's not green has to be packed down each night to the level of the stage and one scaff tower. Then the towers get covered in green shade cloth so everything looks green.

"We had a 125 amp 3 phase outlet installed in the Herbarium



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## Lighting::OUTDOOR THEATRE

building this year so about 200 metres of cable gets run out each night."

Unfortunately three phase cables tend to be orange not green so they don't get to stay out overnight, but a hand wound reel in the back of the truck makes it a lot easier to get it run each night.

The lighting design features 82 par 64s of varying beam, 20 Colourset Scrollers, 4 x QI floods along the front of the stage, and the Golden Scans and Superzooms for a bit of colour and movement. A Robert Juliet 1200 HMI followspot is operated from the back of the lighting truck.

Michael explains the technical budget is quite small because most of the gear is already owned by the company.

"There's a lot of stuff that gets used for three or four months of the year and sits around for the rest of it, but over the twelve years the garden shows have been running, the gear has paid for itself."

The only hired gear was Strand 48 channel Minipacks, LSC Linklights and Datasplits, plus multipins and data cables which came from Premier Lighting in Melbourne.

Michael told me there were some early problems with the Jands Hog 600 they were using, but thanks to Andrew Eadis at On Air Productions they were able to use a Hog 250 as a replacement.

"Apparently, most lighting desks don't like voltages sent into them via the data lines. It tends to make things, how would you say, not work the way they were intended to. Putting power in where the signal is meant to come out is a bad idea. It wasn't a problem with the desk, just part of the set-up and the way we had things cabled. Luckily it was in pre-production before we had to have things working properly."

By their nature, outdoor shows are very labour intensive, especially if there are restrictions for the aesthetics of the site such as the Botanic Gardens. Michael says set up each day takes about 2 hours, and pack up takes an hour and a quarter, with a five person crew.

But the biggest challenge of any outdoor show, especially in

Melbourne, is the weather.

"If there's a major thunderstorm the first thing that happens is the power gets turned off to the stage. The essential electronics get packed up, everything else remains up. We've had one show off a week with bad weather, but it's just part of the gig. We don't have to put up with bad smells or annoying venue managers like an indoor show, here it's just rain.

"The par cans and scrollers are fine. We've got four Colourset scrollers that sit up on the FOH trees for the whole season and because of the design of them the circuit boards are suspended in the middle of the unit, and the motors aren't attached to the bottom of the casing, so that any water that does get into the unit just flows right through without affecting the electronics or the motors.

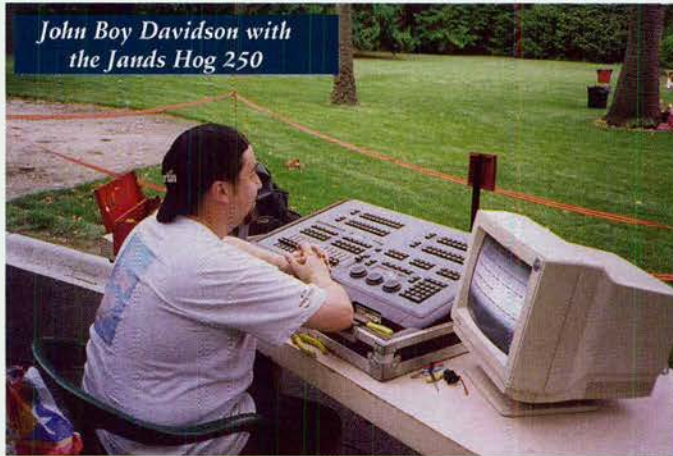
"For the last ten years they've been in and out of the gardens, literally stuck up a tree for three months and they just keep working. It's amazing. The gel strips are the only problem because water and gel tend to not mix well anyway. The gel sticks together and then as soon as you move the motor when they're dry they rip themselves apart. That only happened for the first few weeks before we decided to put some of them away every night that were

pointing upwards and collecting water."

A problem the crew didn't expect was the sprinklers which get turned on every night. Michael said they had to waterproof not only for water falling down, but also spurting up from the ground and even coming sideways. Amps and dimmers that stay out overnight had to be specially waterproofed to withstand these unique conditions.

"It's pretty much trial and error. You can't bag or tape up every connection along the way because what that seems to do is collect any moisture that won't get out rather than keep out moisture that's just in the air anyway. Occasionally we just need to replace a plug and a socket here and there because of rust."

• Mandy Jones



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## MOVING LIGHTS

### PROFILE

#### ABSTRACT

*Universal Lighting & Audio 1800-648-111*

**VR8** 12 dichroic colours, 12 gobos, 150HQI 6000 hour lamp. Built in eight step standalone mode and on board sound to light. DMX channel, Pan invert, tilt invert, pan-tilt swap, colour and gobo snap, display blanking and other useful features can be set on each unit's display panel. Each unit has a lamp hour counter (restable) and a unit usage counter (non-restable) which is shown on the LED display. \$1883.14.

**VR8 Rotating** 12 dichroic colours, 8 rotating, replaceable gobos, 150HQI 6000 hour lamp. Built in eight step standalone mode and on board sound to light. In addition to nightclub applications, the VR8 Rotating is ideal for architectural/promotional applications where other fittings would be clumsy or awkward. \$2807.27.

**VR4** 12 dichroic colours, 12 gobos, 24V 250W 300 hour lamp. Built in

eight step standalone mode and on board sound to light. Ideal for budget orientated installations where the stylish lines and features of a VR Series moving light are required. \$1684.71.

**FutureScan1CE Package** 4 separate moving lights, each individually DMX controllable with 8 dichroic colour/gobo wheel, built in sound-to-light function, 12V 100W lamp and remote control also provided. Perfect for mobile DJ's and smaller venues. \$3814.96.

#### AMERICAN DJ

*American DJ (02) 9568 2100*

**Xtreme** 9 colours + white, 8 gobos + clear, strobes in every colour, full mirror movement, responsive pan + tilt, 4 DMX channels, continuous gobo or colour wheel rotation, EVC 24v 250W lamp. \$982.

**Xtreme AS** as for Xtreme but uses arcstream MBIT150 lamp with 6000 hr life (manufacturers rating) 4200K colour temp. \$1228.

#### COEF

*Universal Lighting & Audio 1800-648-111*

**MP250 Optic** MSD 250/2 (250W 2000 hours lifetime, 17,000 lumen), movement - Pan 450° / Tilt 270°, 16 bit movement resolution, 6 metal and 2 dichroic rotating gobos all interchangeable and indexable on 540°, Set of 10 extra metal gobos given with the projector, 1 beam reducer, 10 basic colours + white + 7 bi-colours, linear dimmer from 0% to 100%, adjustable strobe effect, adjustable rainbow effect, remote reset via DMX. \$5849.40.

#### COEMAR

*Coemar De Sisti Australia (03) 9467 8666*

**CF1200 HE** moving yoke, 370 Pan and 280 Tilt. 41kg, 1200MSR/SA lamp with dichroic cold-glass reflector, full CMY colour mixing, 4 bi-rotational indexable gobos with additional 5 fixed gobos on separate wheel, 2 rotating multiplying prisms, additional 5 dichroic colour wheel, iris, dimmer, 13 to 18, 16 to 21, and 24 degree user selectable zoom (via DMX signal), strobe, frost, CTO correction, remote focus. \$ TBA

(new fixture).

**CF1200 HE Compact** moving yoke, 370 Pan and 280 Tilt. 39kg, 1200MSR/SA lamp with dichroic cold-glass reflector, 4 separate colour wheels each with 5 colours + white + all proportionally superimposable (bi-, tri- colours, etc) , 4 bi-rotational indexable gobos with additional 5 fixed gobos on separate wheel, 2 rotating multiplying prisms, iris, dimmer, 13 to 18, 16 to 21, and 24 degree user selectable zoom (via DMX signal), strobe, frost, CTO correction, remote focus. \$TBA (new fixture).

**NAT TM** 1200HMI, 1200MSR, or 2500HTI or 4K discharge lamp versions, CMY colour mixing, 3600 total movement head, 10 bi-rotational indexable gobos, rotating multiplying prisms, seamless bi, tri, colour wheels, iris, dimmer, zoom, strobe, frost, remote focus, DMX control, 22 parameter, 16 bit positioning, LED multi-function panel addressing. Available in DX (reduced feature), and BBI (in-built ballast) or remote ballast versions. From \$12,200.

**NAT MM** 1200W HMI or 2500HTI lamp versions, CMY colour mixing, removeable and repositionable touring head, 10 rotating indexable gobos, rotating multiplying prisms, seamless bi, tri, colour wheels, iris, 15°-30° or 8°-15° zoom options, dimmer, strobe, frost, remote focus, DMX control, 18 parameter, 16 bit positioning, LED multi-function panel addressing, Reduced feature DX version includes 17°, 21°, and 25° lenses. Available in DX (reduced feature), and BBI (in-built ballast) or remote ballast versions. From \$9,300.

#### FAL

*ELSTA (02)9568 2100*

**FAL2000** 7 gobos + clear, 4 rotating gobos, 1 rotating prism, 9 colours + white, colour temperature correction filters, HSD200 or MSD250 lamp, 7 DMX ch. \$3680.

**FAL1000** 7 gobos, 9 colours, strobing + shutter, HSD200 or MSD250 lamp, 2000 hr lamp life, 4 DMX ch., \$2450.

**FAL360** 360° rotating head, 300° pan, 7 gobos + clear, 7 colours + white, stand alone mode, MSD 250w lamp, 7 DMX ch. \$4090.

**Proscan X** 7 fixed gobos + clear, 5 rotating gobos, mixable, 5 interchangeable rotating prism, 9 colours - 36 with correction filters, strobe, shutter, HMI 1200 lamp. \$10,600.

#### FUTURELIGHT

*Coemar De Sisti Australia (03) 9467 8666*

**MH660** Moving Yoke 200W/250W MSD lamp (2000+ hour life), 11 colour wheel+ white, 6 indexable bi-directional, rotating gobos, black-out, strobe, DMX controllable, flat field, remote focus. LED menu addressing & function system, & power factor correction. \$4,999 (approx).

**Promotion Scan** 200W/250W MSD lamp (2000 hour life), 9 colour wheel, mirror movement (MM) head, 4 indexable bi-directional, rotating 35mm slides, 5 fixed gobos, black-out, strobe, DMX, on-board controller, or hand-held remote control, extremely



SGM Giotto

flat field, and featuring remote zoom control. Available in reduced feature AdScan format. Suitable for promotional and production work. \$4,100.

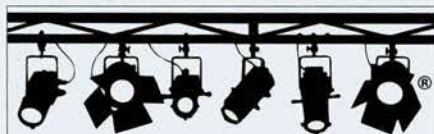
**SC 980** 1200W HMI lamp, two separate 8 colour wheels (inc. 2 Colour Correction & UV filters), bi-colour ability, mirror movement (MM) head, 4 indexable bi-directional, rotating and 5 fixed gobos on two wheels, effects wheel with prism filters, black-out, strobe, remote focus and zoom, DMX, flat field. German quality precision engineering. \$7,500 (approx).

**SC 780** 575W HMI lamp, 11 dichroic colour wheel, separate 2 Colour Correction, UV filters, progressive dimming and frost wheel. Mirror movement (MM) head, 6 bi-directional, rotating and 8 fixed gobos on separate wheels, black-out, strobe, remote zoom & manual focus, DMX, flat field. German quality precision engineering. \$4,600.

#### GLP

*ELSTA (02) 9568 2100*

**MAX** 3600 continuous rotation of yoke and base up to 120rpm, 20 colours + white, 21 gobos + clear, stand alone



### Clearlight Shows Pty Ltd

Distributors for

**Mastercut**  
AUSTRALIA



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## High End Technobeam

or DMX, 8 channels, strobe up to 16 lashes, ELC 24v 250w lamp. \$2450.  
**Patend 575** 9 dichroic colours, 4 rotating and fixed gobos, 2 interchangeable gobos, dimmer/shutter, 13 DMX channels, head rotates 360° up to 420rpm, mountable in any position, HMI575 lamp. \$10,650.

**Patend 1200** as above but uses a HMI 1200 lamp and features 3 rotating prisms and 36 colours. \$16,380.

**Mighty Scan** 20 colours + white, 21 gobos + clear, high speed shutter, compact design, strobing in all colours, ELC 24v 250w lamp. \$982.

### HIGH END SYSTEMS/LIGHTWAVE RESEARCH

**GUET 1800 773 187**

**Cyberlight MSR1200w**, motorised variable zoom, focus, frost, strobe, iris and dimming, infinitely variable subtractive colour mixing, eight position indexed and four rotating glass gobos. \$17,551.26.

**Technobeam MSD 250-2** metal halide arc lamp, 11-170 beam angle, remote focus, optional Laser Aiming Device, rotating 8 position Lithopattern wheel features 7 replaceable positions plus open, 8 scene memory, 16kg. \$7059.57.

### JB LIGHTING

*Universal Lighting & Audio 1800-648-111*

**VaryScan3 Special Plus** HSD200 lamp, with six fixed and six rotating interchangeable gobos, 36 colours, plus 2 colour corrections, frost, quad prism, strobe, 6 or 8 channel mode. \$2950.

**VaryScan4 575 Compact** Physically "compact" 575HMI moving light, making the unit ideal for touring and installation alike. Six rotating interchangeable gobos, 24 colours, plus 2 colour corrections and half colours, frost, quad prism, strobe, iris, 6 or 8 channel mode. \$4659.77.

**VaryScan4 EV** (Extended Version) HMI200 lamp, modular design for easy servicing, quick access to single modules and control PCBs. Changing of gobos is fast and with-

out the need for special tools. Four glass or metal images may be rotated with variable speed in both directions, locked into position and memorised, in addition to four fixed metal gobos. A switchable quad prism enables splitting into 4 identical graphic patterns. 24 single colours with the option of creating 24 additional dual-colour beams are possible. Strobe effects are available with up to 11 flashes per sec. \$9397.94.

**VaryScan6** New moving yoke fitting for release in March, 400° pan, 270° tilt, 24 colours, 24 semi colours, 5 rotating gobos, iris, shutter/strobe, dimming, quad prism, flood effect for 575HMI lamp. \$TBA.

### MAD LIGHTING

**GUET 1800 773 187**

**Madscan 611ARP** uses 6000hr Arcstream 150w lamp, 10 dichroic colours plus open, 10 interchangeable rotating gobos, strobing, 6 channel DMX or stand alone. \$2339.24.

**Madscan 411AP** uses 6000hr Arcstream 150w lamp, 10 dichroic colours plus open, 12 gobos plus open, strobing, 4 channel DMX or stand alone. \$1758.70.

### MARTIN

*Martin Professional Lighting Australia (02) 98981111*

**MAC 250** moving head includes a colour wheel that consists of 12 dichroic colour filters. Eight replaceable rotating gobos - including 3 exclusive glass patterns, and a smooth rotating 3 facet prism. The shutter allows fast strobe effects up to 20Hz and the moving head only weighs 21 kilos. Consists of Martin RS485 and DMX512 protocols. \$5900.80.

**MAC 500** consists of 2 motorised colour wheels with 14 dichroic colours



and 4 dichroic CTC filters. 2 motorised gobo wheels with 5 interchangeable, rotating gobos and 9 fixed gobos. Beam effects include motorised iris and a rotating 3 facet prism, combined with a dimmer and shutter which produce variable speed strobing and 0 - 100% dimming. Consists of Martin RS485 and DMX512 protocols. \$10,409.

**Roboscan Pro 812** ideal for both fixed

and mobile applications. Consists of 11 dichroic colours working alongside 11 gobo patterns. You may also strobe between black and a colour, or between 2 colours, and only weighs 9.4kg. \$1409.85.

**Roboscan Pro 918** scanner which consists of 9 fixed gobos and 5 rotating gobos - including 3 glass gobos. Also has a rotating 3 facet prism, motorised iris, and a mechanical dimmer and shutter. Has a random colour change and variable/random strobe up to 23Hz. Consists of Martin RS485 and DMX512 protocols \$6999.20.

### S.G.M.

*Ashton Admor (08) 9478 3800, (02) 9690 0991*

**Victory 250** 3 fixed, 4 rotating gobos; 16 colours; rainbow; bi-colour beam; 250w 24v longlife lamp; DMX512 input; prism; colour correction; 16 bit; independent operation facility. \$2914.

**Victory Pro 150** as for Victory 250 but with HTI 150 arc lamp or HTI 152 long life arc lamp. Interchangeable gobos; dimmer; strobe also on all Victory models. \$3468.

**Galileo II Live** 8 gobos; 4 rotating gobos; 16 colours; iris; dimmer; shutter; bi-colour beams; rainbow effect; independent operation facility; HMI 1200; electronic ballast; DMX512;

RS232; 0-10v; universal power supply. \$8455.

**Galileo IV Live** 8 rotatable interchangeable gobos; 75 colours; iris; dimmer; electronic focusing; 2 rotating + 1 fixed prism; 2 correction filters; wood filter; electronic ballast. \$11,541.

### SPACE CANNON

*Coemar De Sisti Australia (03) 9467 8666*

**Ireos** Outdoor Architectural Moving Yoke fixture offering variable DMX controllable pan and tilt movement. Infinite colour mix, shutter/dimmer, zoom, available in 4000 or 7000 Xenon lamp configuration. \$TBA (new range).

**Black Devil** Range of Outdoor Architectural Moving Yoke fixtures including 2000W, 4000-7000W, & 10000W Xenon. Variable DMX-controllable pan and tilt movement. \$TBA (new range).

### TAS

*Coemar De Sisti Australia (03) 9467 8666*

**KP6** moving yoke fixture offering 369 x 260 degree movement. 9 colour wheel, 4 replaceable bi-directional rotating & 4 fixed gobos, dimmer, strobe effect, multifunction control panel, remote fixture re-alignment. Features a 575W MSR lamp and high-definition optics. \$8,600.

**KP12** moving yoke fixture offering 369 x 260 degree movement. 9 colour wheel, 4 replaceable bi-directional rotating & 4 fixed gobos, dimmer, strobe effect, multifunction control panel, remote fixture re-alignment. Features a 1200W MSR lamp and high-definition optics. \$8,500.

**Mini Ultrascan 2** 200W MSD lamp (2000 hour life) or 575 MSR, 9 colour wheel, mirror movement (MM) head, 4 rotating and 4 fixed gobos (including dichroic glass & Wood's UV glass), black-out, strobe, DMX control, dip switch addressing, flat field, optional 18" wide angle lens. From \$3,600.

**TX360B** total movement 360 head technology 575W MSR/2 lamp, 8 colour wheel (bi-colours possible), TM

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# CONNECTIONS SHOP

## MOBILE DJ HANDBOOK \$45 EFFECTIVE AUDIO \$80 STAGE LX CONTROLS \$89

By Stacy Zemon. For both the newcomer and the experienced DJ, the book contains helpful tips, advice and ideas on how to develop and expand your business, covering marketing, bookings, buying equipment and music, and running parties and dances. 170 pgs. 1997.

By Robert Simpson. 3rd edition demonstrates how the computer is becoming an effective show delivery platform in its own right. Covers business presentations, conferences, training sessions, museum exhibits, visitor centre displays and multimedia. 255 pgs. 1996.

By Ulf Sandstrom. Explains the general principles of modern computerised lighting consoles and the relevant control standards such as DMX512, MIDI and Ethernet. Covers the basic aspects of controlling moving lights and scrollers. 215 pgs. 1997.

## STUDIO BASICS \$34

By Richard Mansfield. This book covers what happens on the studio side of the glass, from the artist's point of view. Subjects covered include logistics, preparation, repertoire, instruments, and how to listen to tapes. 164 pgs. 1998.

## LIGHTING THE STAGE \$40

By Francis Reid. This book contains tips and pointers which will stimulate all those concerned with using designed light on stage. Ideal for directors, choreographers, set designers, costume designers, stage managers and specialist technicians. 114 pgs. 1995.

## PROJECTION FOR THE PERFORMING ARTS \$80

By Graham Walne. Gives a brief historical overview of early projection attempts, then looks at equipment and the planning and design of every kind of indoor and outdoor live performance. 139 pgs. 1995.

## MIDI SYSTEMS & CONTROL \$55

By Francis Rumsey. 2nd Edition. Covers MIDI control principles and how they can be implemented in practical systems. Deals with MIDI in studio, musical and lighting equipment, mixer automation plus information on the latest additions to the MIDI spec. 202 pgs. 1994.

## SOUND ENGINEER'S POCKET BOOK \$50

Edited by Michael Talbot-Smith. Compact source of essential data for every sound technician. Covers noise measurement, acoustics, microphones, loudspeakers, mixing equipment, CDs, DAT and MIDI, telephony, ISDN, digital interfacing, ultrasonics. 157 pgs. 1995.

## CONCERT TOUR PRODUCTION MANAGEMENT \$39

By John Vasey. Provides basic information needed to manage the production of a touring concert from start to finish. Discusses different types of venues, who's who on the road, crew management, riders, contracts, and even electrical formulae! 165 pgs. 1998.

## PRACTICAL STUDIO TECHNIQUES \$40

By Tom Misner. Includes a bonus CD, a practical demonstration of a complete mixdown session including setting up effects, uses of the compressor, gating of sound, various types of equalisation, selecting reverb settings & more. 102 pgs. 1994.

## PROFESSIONAL LX HANDBOOK \$105

By Verne & Sylvia E. Carlson. Details technical foundations, equipment and methods of lighting for film and video productions. Packed with practical insights, tips and troubleshooting techniques useful on the set. 224 pgs. 1991.

## MODERN RECORDING TECHNIQUES \$65

By Huber & Runstein. Addresses the area of project studio recording, the new base of home music production, using multitrack, Hard Disk and MIDI technologies. Descriptions of the toys, tools and practices of music recording and production. 4th ed. 500 pgs. 1995.

## EFFECTS FOR THE THEATRE \$49

Edited by Graham Walne. Divides effects into four sections: scenic, sound, lighting and special. An exciting range of techniques are explained, with consideration for budget. 150 pgs. 1995.

## CONCERT LIGHTING \$70

By James Moody. 2nd Edition covers every aspect of rock & roll concert lighting equipment and techniques, including CAD, moving lights, hi-bred consoles, rigging safety and special effects. 279 pgs. 1998. WAS \$94

## LIVE SOUND MIXING \$39

By Duncan Fry. 3rd Edition addresses the basics on how a PA system works, and details on troubleshooting when it doesn't. Covers EQ, processing, mixing, sound-checks, effects, monitors. 176 pgs. 1997.

### OTHER BOOK TITLES:

AUDIO WORKSTATION HANDBOOK Francis Rumsey .....	\$75.00
BASICS OF VIDEO LIGHTING Des Lyver/Graham Swainson .....	\$35.00
BASIC STAGE LIGHTING Mark Carpenter .....	\$17.00
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LONG SLEEVE .....	\$19.00
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head, 4 rotating and 3 fixed gobos, black-out, strobe, manual focusing, DMX control, flat field, weighs only 30kg & suits very low ceiling mounting. \$TBA (new product).

## WASH

### CLAY PAKY

Show Technology (02) 9898 1111

**Stagecolour 300** an ultra compact washlight with high quality Fresnel lens, and an efficient fading frost effect. 36 colour combinations, 2 filters for colour temperature correction including 6 rotating gobos and a 3 facet prism. There is also a mechanical dimmer and a high speed strobe. \$7376.25.

**Stagecolour 1000** a washlight that uses a 3 filter CMY colour mixing system, with ovalised projection, electronic dimmer, beam stopper and strobe. A frost filter provides a wide aperture and uniform light intensity over the entire illuminated area. \$9835.

**Stagecolour 1200** consists of a 4 disc cyan, magenta, yellow and amber colour mixing system which provides an infinite number of rich hues plus a full range of pastel shades. \$14,753.30

### COEF

Universal Lighting & Audio 1800-648-111

**MP250 Fresnel MSD 250/2 250W** (2000 hours life-time, 8000°K, 17,000 lumen), movement - pan 450° / tilt 270°, 16 bit movement resolution. 18 basic colours + 2 conversion filters 3300°K & 5600°K - 80 possible combinations of colours, linear dimmer from 0% to 100%, adjustable strobe, adjustable rainbow effect, remote reset via DMX, linear frost, multifunctional display with lamp and projector life-time meter, internal power factor correction, DMX 512 standard. \$5849.40.

### COEMAR

Coemar De Sisti Australia (03) 9467 8666

**CF1200 Spot Moving yoke fixture** with ultra-light carbon fibre casing, 370 Par 280 Tilt, incandescent halogen lamp, exceeds output of most 1200W theatrical fixtures, 200mm zooming fresnel lense, beam shaping (par effect), adjustable beam angles (6.5 to 22), CMY colour mixing, full electronic dimming, strobe effect, DMX control, LED multi-function panel addressing, AAT (Auto Alignment Technology) for instant return to position. \$10,400.

### Clay Paky Stage Colour 1200



**CF1200 Zoomal Moving yoke fixture** with ultra-light carbon fibre casing, 370 Par 280 Tilt, incandescent halogen lamp, exceeds output of most 1200W theatrical fixtures, 200mm zooming fresnel lense, beam shaping (par effect), adjustable beam angles (6.5 to 22), CMY colour mixing, full electronic dimming, strobe effect, DMX control, LED multi-function panel addressing, AAT (Auto Alignment Technology) for instant return to position. \$10,400.

### FUTURELIGHT

Coemar De Sisti Australia (03) 9467 8666

**MH640** Yoke mounted colour wash luminaire featuring fresnel lens, 200/250 MSD/HSD lamp (2000+ hour lamp life) CMY colour mixing, dimmer, black-out, strobe effect, automated re-alignment, variable beam angles, multifunction control panel, almost silent operation. \$4,800 (approx).

### HIGH END SYSTEMS/LIGHTWAVE RESEARCH

GUET 1800 773 187

**Studio Color Automated Wash fixture S version** 370 x 240 degree movement, high output MSR575, over 100 million colour permutations, unique beam shaping, 8 to 22 degree beam angle, no fan, 31kg. \$12,761.17.

**Technopro Color Changing Luminaire** takes MSD 250-2 metal halide arc lamp, same features as Technobeam but without the mirror assembly and the rotating litho wheel replaced with a second color-modifying wheel, 11-17 degree beam angle, 14kg. \$5709.04.

### MARTIN

Martin Professional Lighting Australia (02) 9898 1111

**MAC 600** moving head washlight is designed with lightweight, compact di-

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mensions and multi attachment points for easy rigging and handling. Incorporates the CMY full colour mixing systems to create unlimited shades and colour choices, and ensures colour mixing. Consists of 2 combinable beam shaping filters and a frost filter gives a range of light effects. Can be controlled by standard DMX512 lighting desk or Martin PC controller. \$9007.40.

## NESS SHOW PRO

*Disco World (03) 9735 0588*

**Accubeam 400** Metal Halide 150Watt 10,000 hour lamp, colour temperature of 4,200K - 12,000 lumens, 10 Colors plus white, 12 gobo's plus open. \$1800.

**Accubeam 500** 10 x interchangeable rotating gobo's and separate shutter, 10 Colours plus white, rotation reaches speeds from 15 to 150 RPM in either direction and is continuously variable, Metal Halide lamp 10,000 hours colour temperature 4,200K, 12,000 lumens. \$2400.

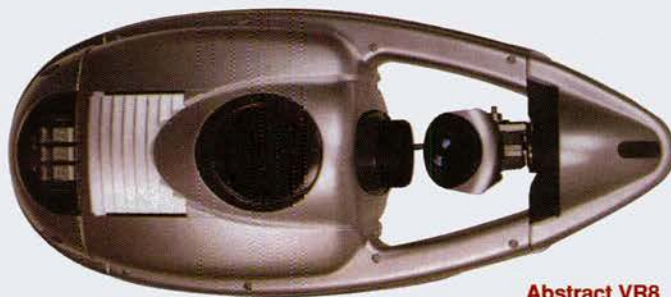
## RYGER

*Disco World (03) 9735 0588*

**Discovery ELC** 250Watt, 20 Gobo's, 10 Colour's, standalone, lamp dimmer, \$1900.

**Defender ELC** 250Watt, 10 Gobo's, 10 Colour's, standalone, lamp dimmer, \$1190.

**TinyScan Plus Package** Includes 4



**Abstract VR8**

x Fixtures 1 x Controller, 100 Watt halogen, Lamp, 10 Gobo's, 8 colours, \$3230 per pack.

## S.G.M.

*Ashton Admor (08) 9478 3300, (32) 9690 0991*

**Giotto** 1200 MSR lamp moving head colour changer with CYM generation system. Dimmer; strobe; electronic focusing; 200mm Fresnel lens; electronic ballast; setting via internal microcomputer. \$12,307.

## TAS

*Coemar De Sisti Australia (33) 9467 8666*

**CF6** Yoke mounted colour wash luminaire featuring 300mm fresnel lens, CMY colour mixing, dimmer, black-out, strobe effect, effects wheel (Woods, conversion, colour additive filters), automated re-alignment, vari-

able beam angles, multifunction control panel, convection cooling for silent operation. Utilises a 575W MSR lamp. \$8,600.

## DEDICATED CONTROLLERS

### ABSTRACT

*Universal Lighting & Audio 1800-648-111*

**64 Channel Controller** 16 head programmable controller, 512 scenes, 128 chases, control of 16 heads, LCD display, auto light show, MIDI. \$1770.63.

**32 Channel Controller** 8 head programmable controller, 128 scenes, 64 chases, auto light show, MIDI. \$1338.92.

**Mini Controller** Pre-programmed controller, blackout, strobe, pattern lock, sound on/off. \$438.27.

### AMERICAN DJ

*American DJ (02) 9568 2100*

**Xtreme B** basic, simple to use DMX controller for American DJ Xtremes, Xcess or Xcels, 4 built in programmes, audio sensitivity, black out, controls up to 8 heads (32 channels). \$204.

**Xtreme C** fully programmable DMX controller up to 64 channels, 6 built in pan and tilt motions, 6 show memories, each up to 300 steps, 19" 3RU. \$1146.

### FAL

*ELSTA (02) 9568 2100*

**Easy-2** easy to use pre-programmed controller - 12 in built programmes for FAL scanners, manual control facility, 6 slides + joystick, music activation, speed/sensitivity control, 19" 3RU. \$1638.

**Lightmaster** fully programmable controller, 16 sliders, user friendly easy to follow LCD display, large memory, external backup facility, touch sensitive function buttons + joy stick. \$6556.

### FUTURELIGHT

*Coemar De Sisti Australia (03) 9467 8666*

**CP Controllers** Dedicated controllers for Futurelight units offers complete control of all parameters, address individual or multiple fixtures, presets, chaser presets, and multiple programs. Simple rack-mount housing with scratch-resistant fascias. From \$700.

### HIGHEND SYSTEMS/LIGHTWAVE RESEARCH

*GUET 1800 773 187*

**Universal Controller** 16 fixture control of any combination of Trackspot, Emulator or Intellabeam, 500 scene, 64 presets, 32 position memories, supports MIDI show control, liquid crystal display. \$3087.98.

**Cyberlight LCD Controller** Eight fixture control, 891 scenes, 1024 presets, liquid crystal display, simple menu operation, PCMCIA card, supports MIDI show control, proportional or remote level submasters, joystick. \$6185.26.

**Technobeam LCD Controller** 16 unique control channels for 16 independently operating fixtures per controller, 891 scenes, 9 memories, up to 1023 presets, up to 99 beam position presets, 8 programmable user macro keys, fixture parameter viewing. \$6185.26.

### JB LIGHTING

*Universal Lighting & Audio 1800-648-111*

**Scan Control 1612** is a universal DMX-unit to control up to 16 scanners with 12 channels each. With the additional 24-PAR-channels, it gives you the possibility to also control other DMX-512 units. Features: 576 scenes memory by controlling 16 scanners, subdivided in 24 programs, up to 16 scanners may be connected with 12 DMX-channels each, 24 PAR-channels, easy operation via analog joystick allows diagonal moves, direct buttons for movement patterns. \$3490.30.

**DMX Controller** allows control of all Varyscan3 & 4 models. Maximum of 12 scanners connected, every function may be defined individually. Storage capacity of 880 scenes by controlling six scanners. 880 scenes memory by controlling 6 scanners subdivided in 20 programs, up to 12 scanners may be connected, easy operation via digital joystick, X/Y pans, programmable scene fade time, versatile copy function, automatic run or manual control with direct access or auto music control with adjustable beat counter. \$1541.03.

### MAD LIGHTING

*GUET 1800 773 187*

**MAD1 Controller** 64 channel DMX MIDI controller, 60 preprogrammed scenes and 12 preprogrammed

## TRAGEDY FOR KEN CRACKER

Recently the veteran sound and lighting entrepreneur Ken Cracker, from Pro Light and Sound, Sydney, installed a new 100 watt Pearl GSL lamp in his lounge room.

"Bessy" the old 100 watt lamp had given over 3 years faithful service but she died suddenly just after turn-on one Thursday night. A night Ken will never forget.

"We spent two nights watching TV in the dark, after Bessy, our old 100 watt died," said Ken. But come Sunday morning, he knew it was time to get a replacement.

"That Sunday morning I caused quite a stir," reminisced Ken. "I was opening and inspecting each 100 watt at Franklins, until I found "Joe", Bessy's replacement. I chose Joe because he had so much more character than all the other 100 watt's.

"The fools at Franklins let me have him for a bargain price of just 76 cents - the same as they were charging for any other 100 watt's!

"As soon as Joe and I got home, it was all systems go. I soon had the ladder positioned in the middle of the lounge room floor, then, with the mains disconnected, I was up the ladder and out with poor old Bessy and in with new Joe. Then down the ladder, and we had a one minute silence in memory of the times we shared with our Bessy."

Later that afternoon, Ken laid old Bessy to rest in Joe's box and buried her in a formal ceremony in the back yard.

"Sunday night we watched a video in the lounge room with our sun glasses on, thanks to new Super Glow Joe," stated Ken. "100 watt's come and go, but Bessy had been with me for over 3 years and after she went so suddenly, and so unexpectedly, well.....I just sat around for a couple of nights. I can see it's going to take a few weeks or so adjusting to Joe."

chases with same number of scenes and chases programmable, X/Y joystick and 5 sliders. \$1065.47.

#### MARTIN

**Martin Lighting Professional Australia (02) 9898 1111**  
**Martin 2308 Controller** consists of functions such as precision beam movement, colour change, colour splitting, gobo pattern change and mixing, strobing shutter, and the speed of these can be pre-programmed and remotely controlled from one scene to the other. Can transfer data from controller to another. \$1392.62.

**Martin 2504 Controller** allows tracking of 4 performers independently and simultaneously, has up to 4 wireless trackers and 4 ultrasonic speakers in tough aluminium cases. The unit has 512 DMX channels on board, standard 5 pin IN and OUT connectors and controls up to 64 fixtures. \$736.89.

#### S.G.M.

**Ashton Admor (08) 9478 3800, (02) 9690 0991**

**Pilot 2000** can control 20 units and a total of 512 channels. Max 32 channels per unit, dual co-ordinate system, joystick and cursor keys, DMX512, RS232, MIDI, mono audio input, SMPTE, rack mountable 4RU, user friendly. \$2238.

**Pilot 1600** 16 units with 16 channels, 16 scenes, 16 records of 100 steps, speed and rate controllable, joystick control, internal microphone and audio input. \$1614.

#### TAS

**Coemar De Sisti Australia (03) 9467 8666**

**Mini Ultrascan Controller 16** Dedicated controller for up to 16 Mini Ultrascan units offers complete control of all parameters, address individual or multiple fixtures, 8 presets, 8 chaser presets, up to 32 programs of 16 steps, Midi In/Out, Audio In, and simple rack-mount housing with scratch-resistant fascia. From \$1,100.

**DMX Controller 16** Dedicated controller for up to 16 Mini Ultrascan, Crono, or Microscan 3 units. With full independent control of all parameters, 16 static presets, 180 memory banks, 32 programs of 90 steps each, 32 chasers, Cybercard storage facility, external analogue triggering, audio input. Compact board with scratch-resistant finish and key-locking programming control. From \$7,500.

### MARTIN OPEN DAY

Martin Professional Australia are having an Open Day on the 30th April 1999 at their headquarters at 13-15 Bridge St, Rydalmere, NSW. Products such as the MAC 250, Light Jockey, Case Controller and Martin Lighting Director will be demonstrated in small classes and hands-on training will be given by the experts.

Places are limited so RSVP by 9th April 1999 - call (02) 9898 1111. If you have a specific request on what you want to see or be trained on, give Martin a call and they will try to accommodate you.



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next month::

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# NEWS

#### SELECON NEWS

In Australia recent sales of Pacifics include to the Civic Theatre in Newcastle, the Sutherland Entertainment Centre, Sydney and into Graftons Lighting for rental. Selecon's WA distributor Stage and Studio have also added Pacifics to their rental stock to meet a rider for a local Festival production.

Based on their experience with the Pacifics installed at the Malthouse, Melbourne, Victoria's resident contemporary dance company "Chunky Moves" are touring a rig of Pacifics through regional Victoria with their new production supplied by Clearlight Shows.

Leading staging company "Stage One" have added Pacifics to their mainly Selecon rig for their upcoming Australia wide tour of AMP's Olympic Roadshow which features the Olympic torches from Games past.

With strong growth in the European market Graham Eales, Selecon's International Sales and Marketing Manager has moved to London on a temporary basis for the next six to eight months. He will work with the distribution network which now covers Germany, France, Spain, Scandanavia and the UK.



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## new products::

### COEF DOWNUNDER



Products from Italian manufacturer Coef are now available from distributor Universal Lighting & Audio. ULA released this month Coef's moving yoke luminaire. The MP250 is available in two versions, the MP250 Optic with 8 rotating gobos (2 glass, 6 metal), and the MP250 Fresnel wash luminaire. Both versions take a TSD/MSD250 lamp, 450deg pan, 270 tilt, 16 bit movement. Both cost \$5349.40 each, ex tax.  
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## Advertiser Index

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Acoustic Technologies	27
Amber Technology	21
Amphenol (Alcatel)	41
AON Risk Services	69
ARX Systems	60
Australian Audio Supplies	39,43
Australian Monitor	61
Australian Music Association	30
Australis Music	8
AV Technology	53
AWA	34
Axis Audio Visual	57
BASF Tracking Guide	34
Birkart Concert Cargo	67
Browns Precision Engineering	93
Bytecraft	86
Chameleon Touring Systems	87
Clearlight Shows	82,88,93
CLS	89
GMI	37,45,12
Coda Audio	64
Connections Shop	90
Connections Trader	71,72,73
Digidesign	15
DMC	29
Group Technologies Australasia	23
GUET	95
H&C Audio	62
Infocomm Asia	52
Jands	2,33,79,91
Kayye Consulting	59
Kodak	55
Lots of Watts	44
Magna	25
Meyer Sound Australia	11
Mole-Richardson	81
Penn Fabrication	35
Production Audio Services	31
Ramsaudio	40
Richardson & Devine	10
Rosco	82
Selecon	83
Show Lighting Australia	96
Shure pull-out wireless guide	47
SOCOG	85
Sony	9
Stage & Screen	7
Studio Supplies	32
Syntec International	17
T-PAC	69
TAG Technical Audio Group	4
Tascam (TEAC Australia)	19
The Show Factory	24
TRC	53,62
ULA	74
Wizard Projects	58
Yamaha	41

# The PA Page

By Michael Orland

**E**very now and then, I restate my aims in writing this page as something of an acknowledgment to any new readers. I've used the TV buzzword "infotainment" before in my preambles. And if I do get readers smiling, crying, running screaming into the street, or whatever, well and good.

But it has always been my intent that each page contain a "point": at least one nugget of information somewhere within all the fluff that some readers will respond to with "Oh. I didn't know that." I welcome (and need!) suggestions for future articles. But they must be based around such nuggets.

In whatever small way it could be, I have always wanted this page to be useful.

Some years ago I wrote an article on the importance of having speakers in phase, and how a battery wired to a speaker lead could be used as a visual phase indicator. So many people I spoke to afterwards responded with "That's it, is it? Sorry Michael, everyone already knows that trick". But just as many responded with "Gee, I wish someone had told me that a few years back". So it is inevitable that on whatever level I happen to be on at the time, from basic to advanced, that there will be a degree of filling in gaps. So bear with me if you've heard it all before. There may be someone out there who hasn't.,'kae?

And so to a page of random tips, suggestions and amendments from readers over the last few years. From Glenn Williams at Australasian Music Supplies, detailing techniques he acquired back in the UK:

1) If you have to do a room with a sound level meter, set all the EQ flat on your system and run a frequency generator through the P.A. Many times I have been able to notch out certain frequencies on the graphics that trip these things so you can drive the system a bit harder. (The only thing I'd add here is that for many, a good test CD with both fixed and swept tones may be just as useful as a fre-

quency generator and a little more practical.)

2) Kinks in cables can sometimes be removed by leaving your leads stretched out in the hot sun for a couple of hours and then re-rolling them very carefully and leaving to cool naturally. It works very well for guitar cables and I've had 50/50 success with mic cables. How we used to long for a tour of Spain so we could take all our knackered cables and try to fix them.

3) When I was starting out (young, green and naïve), I was told to keep your spare leads in two places on the stage. Behind both P.A. stacks. A: it saves you running across the stage and back mid gig to replace a lead. B: Should you need to think a problem through and the promoter/band/drummer's girlfriend are hassling you about it, you can pretend you know what you're doing by going to the other side of the stage and picking spare leads from there. It only gains you a few seconds but I'm sure you've been in a similar position as I have and need that break."

From David Letch, in Albury, in response to last year's article on safe stax, came the suggestion of coating the top and bottom of all speaker cabinets with tyre black. He assures me this makes them just tacky enough to grip together and prevent vibrating apart during the gig, while still being easy enough to prise apart during the pack up.

Thanks to Graeme Eime, general manager of Alcatel, (now known as Amphenol) who wrote in response to my December '97 article on ridding your audio system of hums. In this article I stated that there are cases where it is recommended practice to connect the shield of a signal cable to the chassis earth of the thing it plugs into. This is done by wiring the braid or drain wire to the metal shell of the XLR connector. I said this was easy enough to do with most brands that gave you the option on the insert, but wasn't possible with the current range of Alcatels. Graeme pointed out that it was in fact possible with their IDC

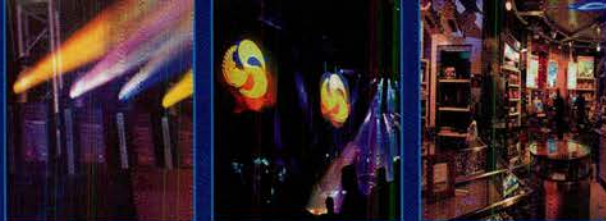
(insulation displacement connector) solderless range. This is done by simply placing the screen wire over the ground protect flap rather than underneath as specified for standard applications.

While I'm on the random tips thing, permit me to move away from things audio for a minute to a subject which concerns all semi nomadic peoples, such as touring crews: mobile phones. There has been a bit of controversy lately over lost or stolen phones. A colleague of mine, who I'll call Vic L, recently misplaced his phone and shortly after received a phone bill which included several lengthy calls to Lebanon. If you lose your phone, you can always ring your carrier and ask for all outgoing calls to be barred till further notice. This incurs a small suspension fee, (about \$5 a month) which is much better than simply canceling your service where you could lose your number, and all the future work that goes with it. The other worry is that someone could remove your SIM card and present it as theirs in a shop under the pretext of upgrading their phone. To prepare for this, you should take note of your IMEI number, which should be marked on the rear of your phone under the battery. If for any reason it isn't, you can also access it by pressing \*#06# on your phone's keypad. The current controversy has been around there not being a collective data base of IMEI numbers, which, if it ever happens, will probably be years away. Doesn't have to be a big deal just 'cause Telstra, Optus and Vodaphone don't like talking to each other. You simply need to ring all three and report your IMEI number as missing in action and they can each list the card as stolen on their individual data bases.

Once again, if you have any tips which may supplement past articles, any tips which may form the basis of future articles, or even if you'd like me to include a reference to God in future preambles, please don't hesitate to fax or Email your suggestions. •

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