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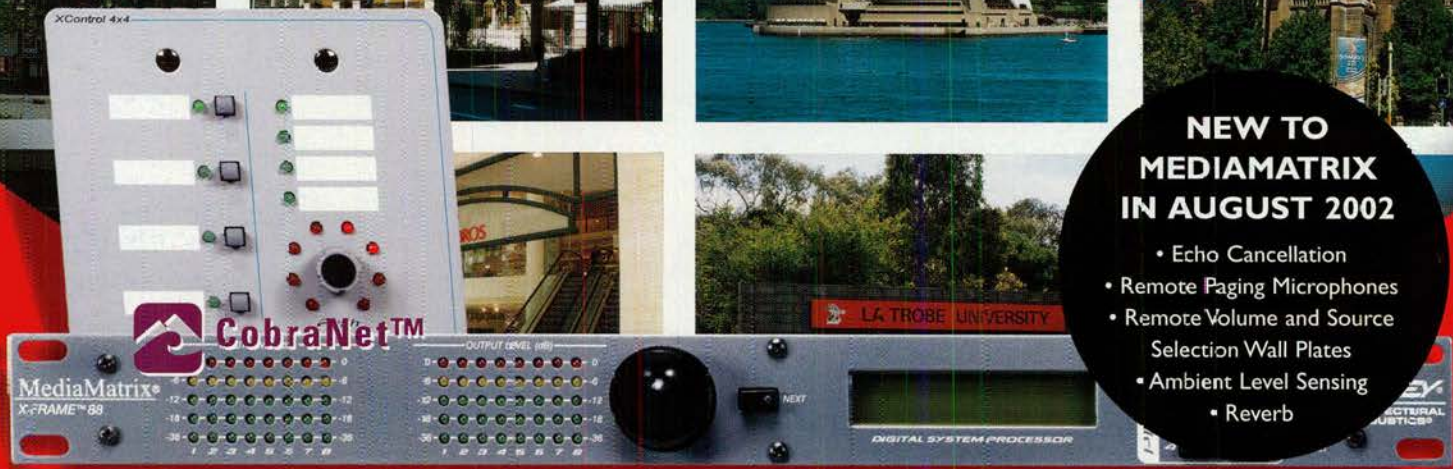
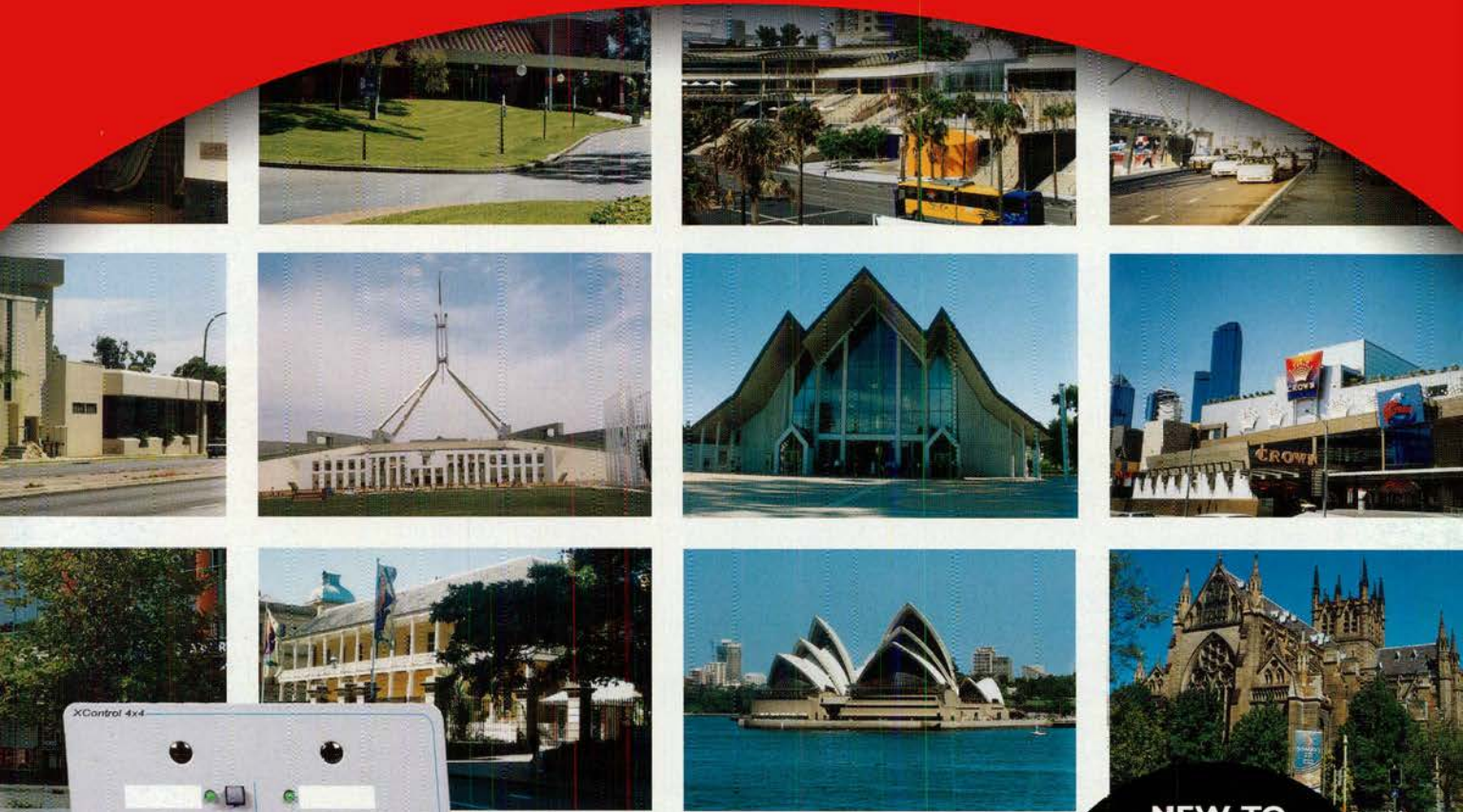
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Audio Signal Processing and Control

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Portable Projection

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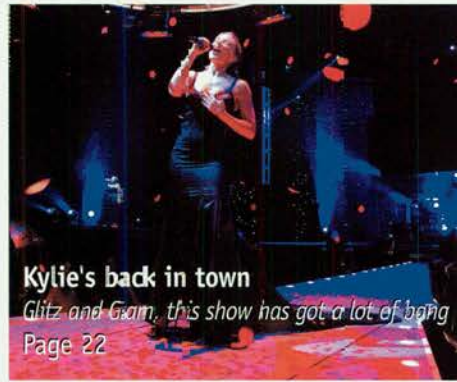
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Kylie's back in town

Glitz and Glam, this show has got a lot of bang

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Standards For DMX512-A

A third public draft of the standard makes big changes

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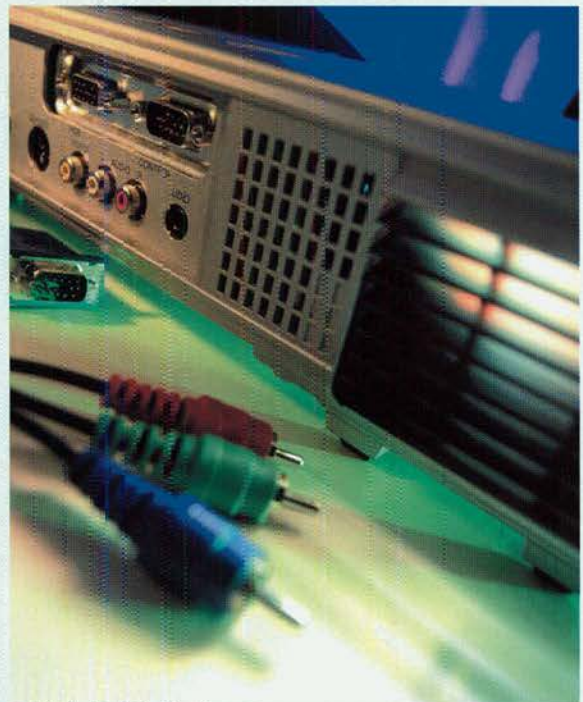
Oliver!

Technology built to tour

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On the Cover...

Pictured is the Hitachi CP-X275  
(Reviewed back in June)



• Photo by Dario Gardimar  
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Oct - Studio Monitors & Headphones, Outdoor Lighting Equipment  
Nov - Digital Automated Mixing Consoles, Rigging, AV Systems Control

NEXT ISSUE:

Onsale 9 October, subscribers earlier.  
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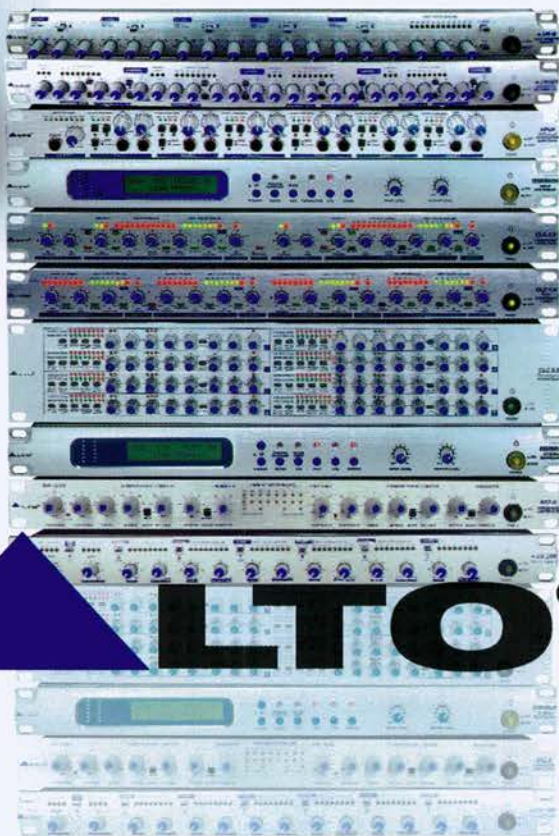
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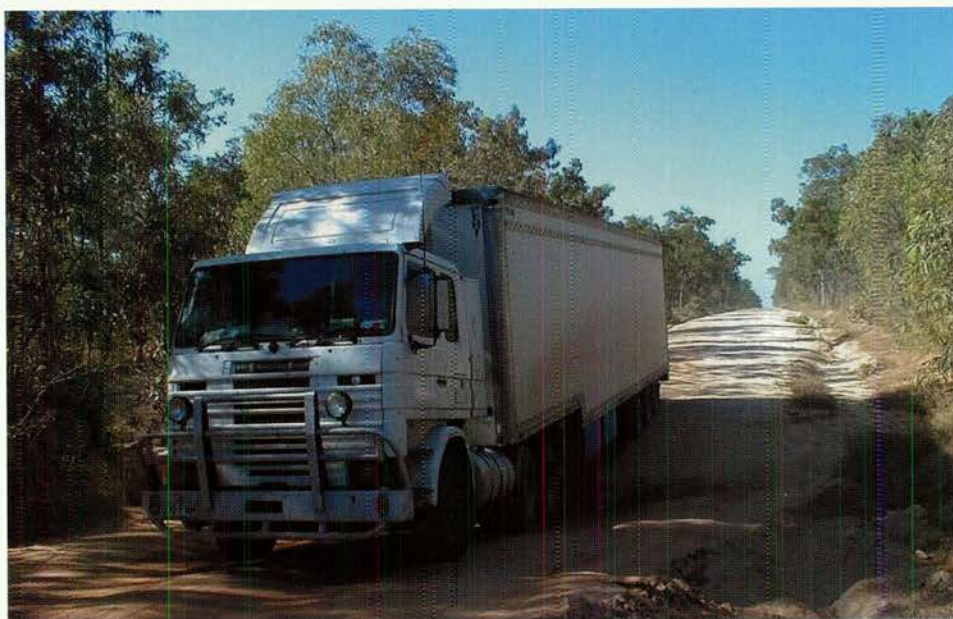
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# Connections

The Asia/Pacific Professional Audio and Visual Technology Monthly

SEPTEMBER 2002



Dips in the road, washouts, 3 days driving and a pan full of dust. Then, repair the gear at Weipa. Fun, huh?

## Festival of the Croc ~ at Weipa

BY Jamie Schmidt

THE call came through again one afternoon from Wild Gravity in Townsville, "We are doing the Croc Festival again bloke, want to do lights?" It had been two years since I last did that show and I foolishly thought to myself, "the drive wasn't THAT bad last time" - and agreed to do it.

We finished packing the truck on Thursday and set off for the four-hour trip to Cairns that day. We arrived that night, had a feed and a few drinks and managed to get in a good night's sleep before the drive-known as 'the drive from hell' - the next day. We woke up the next morning and strapped on our crash helmets in readiness for what the day would hold for us.

We were quite surprised to find that for the first 200km past Mareeba the road had actually been sealed and was extremely good to drive on. The boys had been busy since the last time we had come up. As we turned down the road which heads to Laura we saw that dark evil red material up ahead that meant

corrugated dirt road. We approached it with the same anticipation that you get with a plane landing. All smooth sailing in the air but you know the landing is coming and all of a sudden - touch down - and you rock from side to side and your teeth begin to rattle. The only

*Please turn the page >*

### NEW DMX: It's 512-A

The Entertainment Services and Technology Association (ESTA) have just released the next draft of the new DMX standard.

According to ESTA, the draft is intended to revise USITT's original DMX512 standard to "clarify undefined and loosely defined provisions in the original document and to accommodate new lighting technology while maintaining as much backward compatibility with products that comply with the existing standard as possible."

The new version addresses issues regarding the use of alternate start codes, the undefined second data link, grounding practices, over-voltage protection, and alternate connectors.

• For John Grimshaw's guide to DMX 512-A see page 52

## CODA LAUNCH IN SINGAPORE

Sydney based **Coda Audio Services** has provided its brand new Meyer Sound M3D Line Array Loudspeaker System for Singapore's prestigious National Day Parade (NDP), the first time a new loudspeaker brand has been used on the event for more than a decade.

Coda, which has set up a Singapore office to handle NDP commitments and other new business in the region, found the event was a great opportunity to get to grips with its 16-cabinet M3D system, supplied by Meyer Sound Australia.

"It was the ideal choice for the job, and worked like a charm straight out of the box," says Coda director Philip Murphy, who made the pioneering decision to use the M3D cabinets as a distributed, rather than a line array system for the purposes of this particular job. "They're a full range cabinet with a 90 degree horizontal pattern and a very tight vertical pattern of approximately 10 degrees, which allowed us to use them this way.

*Please turn the page >*

Coda's Phil Murphy and Front of House Engineer Jauhari Rais



## CODA IN SIN *(Continued)*

Four sound towers, two at each end of the stadium, were each fitted with three M3D and one M3D-Sub Directional Subwoofer in two configurations - two M3Ds for the longer throw to the corners and an M3D with an M3D-Sub for the end zones. Four further M3Ds and four more M3D-Subs provided a stereo system for the VIP enclosure along the western grandstand side.

Additionally, 28 Meyer MSL-4 Horn-Loaded Long-Throw Loudspeakers were used around the stadium for field foldback and as effects speakers on the towers, while a pair of CQ-1 Wide Coverage Main Loudspeakers provided cues for the parade commanders.

"It was invaluable in that we were able to (remote) monitor speakers that we couldn't gain access to on the field. We could also check the temperatures of the speakers, which were out in the hot sun for 12 hours a day. The M3Ds stood up amazingly in the climatic conditions, which also included torrential rain."

Due to the stringent regulations surrounding NDP, Coda started setting up the system three months before the August 9 event.

Proceedings were somewhat thwarted when a fire broke out in the backstage control room three days before the final full NDP rehearsal. Among the equipment to be destroyed were eight Meyer USM1 stage monitors which were replaced with UM-1P Narrow Coverage Stage Monitors hired from Meyer's Singapore distributor Quebec Leisure. The Coda team worked around the clock for three days to track down and replace the destroyed equipment and rebuild the control room, and were finished just in time for the rehearsal.

Despite flood and fire, the Coda team, which as well as Murphy and his partner Michael Wilkie included Senior Systems Engineer Brad Law, Systems Engineer Tim O'Neill and Monitor Engineer Andy McKeown, together with Front of House Engineer Jauhari Rais, delivered a new level of sound quality for Singapore's NDP.

• Coda Audio Services Singapore Pte Ltd, call +65 9347 2321



## WEIPA CROC SHOW *(Continued)*

difference was, we still had 600km to go.

There was little in the way of water crossings this time which meant that there were less washouts that the truck could drop into. This also meant less equipment repairs when we got to Weipa. We decided to take the trip over two nights this time and stopped over at a camp site. There was a small store and a service station. At this point we were approached by two Swedes who had rolled their car, and two Americans who were starting to lose the bonnet of their vehicle. We told the Swedes we would give them a lift back the other way if they were still there on our return, and told the Americans that we would help them if they got a welder from the service station. The Americans approached the service station and were told they could not use the welder as it may affect the service station's insurance. Just goes to show the extent of public liability problems.

The next day we drove through to Weipa where we met Paul, Rusty and Kevin from the Croc Eisteddfod crew and began to set up the truss, stage, lights and audio. We had kids from Weipa on hand to help who were doing their production certificates. It was great to see kids who were interested in the industry that far north and it was satisfying to be able to give them a chance to work with equipment they had never encountered before.

We finished the set up and conducted the blue light disco the following night. The first day of school rehearsals arrived and I began to program blind, all the while explaining to the students and teachers that although it was day time and they couldn't see the lights, I was in fact programming the show so it would meet their expectations.

The first show arrived and as with last year, thousands of people from all the surrounding areas turned out to watch. Most schools were from traditional aboriginal or Islander regions which was reflected in their performances.

The lighting rig I used included 80 pars, 4 x Cyberlights Groundrows and 4 x Mac 500s controlled through a Hog 1000 all of which to my surprise worked perfectly despite the rough trip. We also had 2 x Selecon performer followspots which the kids from one of the high schools controlled. This was great as it gave them the experience of using the followspots and it also gave them a first-hand look what it is like being yelled at by an LD. *(Ha! -Ed)*

The second night ran perfectly with the same size turnout of the night before and all parties happy with the way the show ran. We then began the lead out with the help of local volunteers, but the numbers soon dwindled to just us and the Croc Eisteddfod crew after only an hour. We loaded up the truck and went back to 'Club Kev' for about an hour. That was the local Croc Festival social club. We got a few hours sleep and headed on down the road again. I thought that I might try and get a couple of hours sleep in the truck as I was starting to get used to the bumps, but 10mins later I peeled my face off the roof of the truck after a huge bump which I was not prepared for and vowed never to sleep on this road again.

All and all, this year's Weipa Croc Festival was a great success and as I sit and think about it, still coughing up cups full of red dirt, I realise that there are not too many shows that I do that conjure up the sense of community spirit that these events bring to these outback regions. It is great to be associated with these events and meet the people that live way out there.



## Black Ink passes to Al Craig

**SYDNEY:** After 30 years at the helm of Black Ink Recorders, **Allan Black** has retired. He is rare, as he rode the studio shakeout turmoil of the 1990s without pause, and left a first class facility which has now been sold.

The new owner, **Al Craig**, is well known around Sydney as the former head of the A/V department at the Sydney Convention Centre in addition to his 18 month stint as Audio Producer for the Sydney Olympic Broadcast Organisation. Al arrived in Australia in 1988 with a wealth of credits in the US with the likes of Prince, Blood Sweat & Tears and many others.

Al states, "When I became aware of the sale of Black Ink, I took immediate steps to buy it.

As one of the longest serving studios in Sydney, I recognized the opportunity to pick up where Allan Black leaves off. The combination of state of the art analogue with state of the art digital means I now have the best of both worlds to work with."

"My immediate plans are simply to continue the quality operation that our clients have come to expect. All of the current staff have agreed to stay on board."

Over the years Allan has developed a reputation for quality recordings and duplications. The studio combines the best of vintage and state of the art technology.

• Call Black Ink on +61 2 9439 3033

## New seating system expands theatre capacity

Parramatta's Riverside Theatres has added significant capacity to their two smaller venues, with a new seating system from Adelaide's Pro-

Stage Australia. The Concertina seating system breaks down into moveable modules, Riverside can now reconfigure their secondary theatre spaces in a matter of hours.

Venue capacity rose by a third in the two Riverside theatres, which will quickly offset the cost of the system. The Lennox Theatre now holds 240 (vs 164 prior) while the Rafferties now can host 110 pax, up from 80. The cost of the system was around \$200k.

Pro-Stage also manufacture demountable stages.

Pictured at commissioning are **Robert Love** (Theatre manager), **Kelvin Harman** (Pro-Stage), **Sean Clarke** and **Col Peet** (Riverside Technical Manager).

• [www.pro-stage.com.au](http://www.pro-stage.com.au)



## KRK & ALTO FOR MUSICLINK

Music Link Australia has reaffirmed its commitment to professional audio after losing the Behringer agency earlier this year, and has been appointed the Australian distributor of the well regarded range of KRK studio monitors. KRK fields a complete range of powered and unpowered studio monitors and are a market leader in the USA.

Music Link has also been appointed the exclusive Australian distributor of ALTO professional audio products.

ALTO is the culmination of a long quest for the extraordinary by the Italian design visionary, GP Staffa. GP developed the ALTO line of analog and digital audio products, which feature a series of sophisticated DSP's and a wide range of state-of-the-art algorithms.

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• [www.krksys.com](http://www.krksys.com)  
• [www.altoproaudio.com](http://www.altoproaudio.com)

• MUSIC LINK 61 397656531

## 600+ delegates assure convention

The Australian Music Association's AMAC convention runs this month on the Gold Coast, and is assured of success due to a record pre registration of delegates. The AMA has reinvented itself in recent times, and has managed to more solidly unify the typically fractured musical instrument (MI) equipment distribution and retail trade.

AMAC starts on Friday the 13th of September at Jupiter's Casino, and runs through that weekend into Monday. It boasts seminars, displays, and social events.

Get info at:  
[www.australianmusic.asn.au](http://www.australianmusic.asn.au)

## Truck was mine!

I thought I would just point out a little mistake on page 55 of the August edition. The photo of the F350 at the Big "T" Roadhouse was not Jimmy Murray's (Lord bless him) Sherbet truck.

It was in fact an old piece of my history a band out of Perth called "Western Flyer". The crew were Terry Inkman and myself. Western Flyer contained Matt Taylor from Chain and James Gillard soon to be of Mondo Rock fame. Terry went on to manage the Eurogliders with the rythum guitarist, Brian Peacock.

Is Jimmy Murray still alive?  
Man, those were some wild days!

Cheers, Steve Lieter

## Traditional vs HiTech

Connections has received correspondence regarding the story last month about the Clay Paky VIP300 being used for shop front displays. The person in question, 'Michael', suggests we consider light output and running costs. The Clay Paky at 3m throw has an image spread of about 1.6m and a light output of around 5420 lux. The Pacific we mentioned in the article has a light output of 4178 lux at a slightly smaller spread. At Michael's suggestion, we looked at the architectural Strand SL.

The Strand SL 15/32 has a slighter larger image at the same throw, producing around 8,111 lux.

The price comparison over time between the Clay Paky unit, Selecon Pacific and the Strand SL is a little more revealing.

Take the lamp life to the end of the 9000hrs listed for the Pacific (it is the same for the SL). The equivalent life of the 3000hrs lamp used in the Clay Paky would mean that you would need three Clay Paky lamps to run the same life as the ones used in the Pacific/SL. If used for 8hrs a night, every night, the 3000hrs would expire after one year. Based on the figures shown in the August issue, the Clay Paky option would cost about \$3,697.15 including lamp changes after three years, whereas the Pacific option would be \$1,945 and the Strand SL \$2,164.

## Test and Tag issues (1)

Safety tagging of appliances etc is normally done by Licensed electricians or other persons who have taken the TAFE course or similar to carry out the work. However the amount of ignorance in the field as to what should actually be tested is frightening.

### 1) Visual Inspection

The most important (and most often ignored) test is a Visual Inspection of the device, especially leads. Cords should be firmly anchored in plugs, connections made solidly with no frayed ends. Copper terminals should be clean and not pitted. There should be no sign of heat or melting of plugs. Leads should be visually inspected for their entire length to ensure that there are no cuts, cracks or breaks. This test alone represents 80% of the test - and CANNOT be done by ANY "Bells and Whistles" test machine!

### 2) Polarity

For leads, boards etc, a functional check that Active and Neutral and especially Earth are not transposed. Can be simply carried out with a multimeter or purpose built tester. RCDs should be plugged in and tested using both the test switch and an approved RCD Tester.

### 3) Insulation Resistance

This test is important on appliances which come in contact with water such as pumps, cleaning and cooking appliances etc, but really should be performed on all items. However performing an IR test on leads and boards will usually not pick up leakage faults if the lead is bone dry. The most thorough way to test leads for IR is to simply dump the lead (not the plugs!!) in a bucket of water first before testing for IR. This will reveal if there are any hairline cracks or cuts in the lead and show a low IR on the Insulation tester or multifunction tester.

### 4) Earth Resistance

In August Connections we were shown a Multimeter testing the Earth continuity of an IEC lead as around 2.6 ohms. This is NOT the way to test for Earth Resistance! Virtually all multimeters are unreliable testing resistances below about 10 ohms, so forget using them to test leads for anything but continuity. In most cases the test leads (and the silver coating on the probes) has a higher resistance than the lead being tested, so any reading is useless. In order to accurately test for Earth Resistance, you need a meter specially designed to measure "Low Ohms". These meters pass a larger current (up to 1 Amp) through the lead to ensure the connections are "bedded down". You can easily build a Low Ohms tester yourself using six 1 ohm resistors in series, a 6v Lantern Battery and a Multimeter set to the "Volts" scale connected across

the resistors. This will cause a current of about 1 Amp to flow through the completed setup (including the lead) and the meter will read the full 6 volts across the resistors. If the voltage is less than 4 volts, then that means at least 2 volts is appearing across the lead and it is a fail. This test is not normally required for most leads and appliances, perhaps only Annually or for items used in very rough circumstances. Most multifunction testers DO test for Continuity, IR and Low Ohms.

### 5) The Tag Itself

Half the time taken in tagging items is in the process of actually writing the tag and affixing it to the appliance. The tag ALWAYS goes on the LINE end of the appliance, i.e. the PLUG end, not the SOCKET end. It should clearly state the date of the test and who tested it. The need for a database showing all items is not so important and although its a good idea, it doesn't add any extra safety to the system in use.

### When to tag and When not to tag?

Industry compliance with the need to test and tag electrical items in the Entertainment industry ranges from "None at all" to "Paranoid". Usually the most effective safety system is found somewhere

in the middle. Basically, wherever there is a PASSING OF RESPONSIBILITY of an item from one person or department to another, tagging should be used. Examples include;

- a.) Between Hire Dept's and Customers.
- b.) Between Art Department Electrics and Gaffer's Electrics in Film and Television.
- c.) Between Employees and

Employer (example, tools provided by a contractor for use on set or stage).

Any items that always remain the responsibility of a single person or company must still be tested, but the need not be tagged unless it is expected that the items may at some stage pass to someone else. This means that in a large Theatre it is silly to tag every light in a rig if the lights never leave that rig - but items regularly passed around the theatre and used in different locations by different people should be tagged.

Ultimately it comes down to OH&S Risk Management. If it can be shown that a risk exists, and that providing a tagging system is expected to reduce that risk, then the system should be implemented. If there is no appreciable risk reduction perceived by implementing a tagging system then there is no need to implement it, and it is good enough to simply test a rig as a "complete unit" and sign off the rig as "tested" using one piece of paper, instead of 1000 tags.

Paul Matthews  
Artist Electronics

- More letters on this, please turn the page>



NOT the way to test for Earth Resistance....

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Bill me later! Signed \_\_\_\_\_



## Johnston Audio run beef gauntlet

It was no laughing matter as the Global Warning Tour brought the juiciest examples of World Wrestling talent to Melbourne last month. **Larry Ponting** (left) and FOH engineer **Drew Menard** (right), oversaw a 60 box NEXO rig at the sold-out Colonial Stadium.

The show/match/display required a very high SPL replay system, with the performers using radic mics for frequent dialogue.

Quote: "I'm gonna pull your face off your butt ugly head, you mutha..."

The brave crew drew straws for job of wireless tech, who was advised to 'keep well clear of the wrestlers'. As if a warning was required! Oh, and: "do NOT sit on the ringside chairs!"

It was actually a complex audio task, with 10 zones, done well.

## Extron, Inline combine op's, appoint RGB Integration

Two well known computer-video interfacing companies have combined. Extron and Inline are now one entity.

RGB Integration will be appointed to distribute Inline products throughout Australia and New Zealand as of November 1, 2002. RGB Integration is located in Adelaide and is the current distributor of Extron products for Australia and New Zealand.

Ron Boyes, Managing Director of RGB Integration said: "Inline's product line will help us round out our product offerings in several areas. Our customers demand the best from us and we have been fortunate to represent the Extron line. With the addition of Inline, a larger number of products will help position RGB Integration even more firmly. • Call RGB : +61 8-8299-0799

## PEOPLE, MOVES

**Stuart Craig** has been appointed to the GM's role at Audio Telex. In announcing the appointment, Audio Telex MD, Roy Morgan said, "In his new role Stuart will be able to effectively co-ordinate the sales and marketing arms of the business."

**Richard Hallam** has joined Factory Sound. He is an authority on design installation.

TCP have reopened in Queensland with a new office managed by **Phil Bowman**. He recently returned from Malaysia where he was head of lighting and audiovisual at the Petronas Twin Towers for three years. The office is at 38 Bubke Crescent, Caboolture, call + 61 7 54282695 TCP have also just opened a South Australian office run by **Greg Hallam**, call: +61 8 83651677.

**Garry Van Egmond Enterprises** has moved to Level 3, 434 St Kilda Road, Melbourne, 3004 Victoria. New phone: +61 3 9867 4333, new Fax: +61 3 9867 5333.

Recently, the **Lectrum** business, which incorporates a range of lectern models, options and accessories, transferred from B&H Australia to Wilson & Gilkes Pty Ltd. The amicable change of ownership was closely co-ordinated between two companies.

• Contact Wilson & Gilkes +61 2 9914 0900. [www.gilkon.com.au](http://www.gilkon.com.au)

**Mike Emerson** has joined the Sydney SuperDome Operations division as the permanent in-house Production Manager. He replaces **John Vasey** who has moved to **Jim Straws** position with Jands as Production Logistics Manager while Jim fills lighting duties for the Rolling Stones.



## GEAR TO MOVE?

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## Premiums

I'm belatedly responding to your editorial in May about Public Liability. I feel there is a relationship between competency and insurance premiums. The Opera House mentioned this to me years ago for mechs and it has been a feature of the UK scene for some years, again principally for mechs and, in the larger venues, for crane drivers and fork-lift truck drivers - these where training has led to a qualification for some years.

This is one reason why I have been banging on about the need to record the context of assessment for units which have a clear OH&S implication.

There ought to be a position where a venue which has demonstrated proper risk assessment, and where it can demonstrate that it has reduced the risks, could thereby enjoy a lower premium. I have always had a problem as a venue hirer, that I have to carry PL when I am exposed to a building, equipment and staff over which I have no control but which I expect to operate safely as part of my contract for the hire of it in the first place.

In a related matter theatre consultants are now being increasingly asked to carry PL, usually to \$5M or \$10M, and on early feasibility / business plan type projects where their input will only involve the public many years into the future and then only after several (usually architectural) filters have been applied to their work. In these studies the premium for PL is often greater than the fee. I have been successful in some cases in getting this requirement removed.

I had lunch with the CEO of Ogden IFC here who runs 4 venues. He says the insurers now require a vast amount of audit, recording and reporting of every incident (typically even including voltage reductions), in addition every aspect of what is being rented to incoming companies must be established in writing and agreed before tickets can be sold. This naturally has an impact on hire charges, which actually haven't risen here in 7 years.

Graham Walne, Perth

## Test and Tag issues (2)

After attending the RMIT short course on "Portable appliance safety testing", I feel compelled to point out some misconceptions (I previously had) regarding testing and tagging.

### 1. If I have an approved Appliance Testing Device, I don't need any qualification as I only need to push one button.

Wrong. It is illegal to apply a Tag without holding the appropriate Licence or Certificate.

### 2. If an appliance is faulty the Tag should be removed.

Wrong. Tags should never be removed as they may be the only way of identifying the appliance (and it's history), if an appliance is found faulty then a "Danger, Do Not Use" Tag should also be attached.

### 3. Tags only need to be attached to the Flex.

Yes, however many appliances have a removable IEC power lead, in which case another tag also needs to be attached to the appliance body.

### 4. A Tagged appliance is working 100% and within manufacturer's specifications.

Nup, Tagging is purely about Electrical safety, ie; an appliance can be connected to 230V without the user being in danger of electrocution. The actual operation of the appliance is of no consequence.

### 5. It will be very time consuming for me to Test & Tag my Effects and Amp Racks; each contain between 4 to 8 appliances plus fans and powerboards.

Not so, as all the appliances are bolted in (and cannot be removed without a tool) then the Rack as a whole is regarded as one appliance and can be tested once at its inlet socket or first powerboard. Common sense dictates that if any appliances within the Rack are faulty then the Rack as a whole will not pass test.

### 6. A Multi Meter is an adequate Test device.

Wrong. To effectively test Insulation Resistance you must use a Test voltage of 500V DC between Active and Earth, Multi-Meters won't do this, the (more expensive) Mega Ohm Meters will.

### 7. 500V, this is a joke, I'm not going to connect my gear to that every time I test it, it will get fried!

Not so with the correct method, Active and Neutral on the Appliance are both connected to the negative of the Mega Tester, and positive is applied to the Earth of the appliance. The test voltage cannot flow through the workings of the Appliance as the potential is exactly the same at both Active and Neutral, If the Test Voltage flows anywhere it will only be through the Insulation of the Appliance.

### 8. This is a sledge hammer approach to testing Insulation, surely if the Insulation is greater than 1 M Ohm, then it is safe.

Wrong, all Insulators have a "Break Down" voltage, if this Break Down voltage is above the test voltage and below the mains voltage then the test is useless. The Insulation Resistance needs to be measured at or above the working voltage.

### 9. This whole Testing & Tagging hoo ha only applies to the construction industry because they work under adverse conditions. In AV, Audio, and Lighting we usually work in a controlled venue and the punters/public are not allowed on our stage/work area.

Yeah, sure! We all should know that this isn't true. Work Cover knows this too, and therefore regards the whole Live Entertainment industry as part of the construction industry. We all have a "Duty of Care" and should realise that we potentially endanger the lives of the public as well as musicians/performers each time we rig a show.

- Mark Barry, bssound.com.au

## But what about Joe?

Hmm, interesting subject. We're a sales/production/hire/installation company and tour productions throughout several states - we're not a huge company, but this issue raises many questions for us. We've sent some of our staff through the 1/2 day course and have purchased the testing equipment for leads and appliances and have initiated a testing and tagging regime. (Still our Public Liability insurance jumped by 90%).

A question - If we're all tagged and tested, what happens when Joe Bloggs (the guitarist) wants to plug in his (untagged) rig to our stage power?

- Neale Mace - Entertainment Installations

Ed - With the Joe Bloggs scenario (no doubt a guitarist extraordinaire), all you have to think about is: Who will get sued when someone is electrocuted? Worse still, when Joe gets The Big Blast?

Probably all of these entities: the venue, the promoter, the equipment suppliers and installers and any other technician that has anything to do with that power. Oh, and you too, because you were there!

My suggestion would be that all of your staff are trained in the OH&S implications of allowing that person to plug in - in other words, that they may not have a company to work for if the poo hits the fan. - John Grimshaw

## Automated touch-sensitive control surface

Mackie Control is a nine-fader (eight channels and master) MIDI controller that provides in-depth mixing, editing, automation, and navigational control for any supported digital audio workstation.

This compact device has eight channel strips, each with a 100mm touch-sensitive motorized fader, mute, solo, and record arming buttons. Other channel strip features include a signal LED, a channel select button, and a V-Pot that can be used to control panning, send levels, EQ, dynamics, and other DSP plug-in modules.

Mackie Control also supports a full automation assignment section, edit buttons, Undo, Redo, and Save buttons, and a Shift Modifier that offers dual functionality for specific commands.

Complete navigational control is provided in a tape-style transport with Jog/Shuttle wheel, Loop In/Out points, and timeline quick jump buttons. All controls live within a small, tabletop, analog-style control surface with a backlit LCD display.

The Mackie Control works seamlessly with Soundscape 32, Mackie's new 32-track DAW.

In addition, mission-specific software "hooks" (or specialized commands) have already been

written by Mark of the Unicorn (MOTU) to support the Mackie Control.

As a result, Mackie Control users can use a Lexan overlay (that fits right over the master section) to personalise the controller for Digital Performer. Additional hooks will soon be released by other software companies like



Steinberg, Cakewalk and Syntrillium. Once these hooks are complete, Mackie will release Lexan overlays for each of these companies' respective DAWs.

The Mackie Control Extender is a channel extension for Mackie Control. Slightly narrower than a Mackie Control, the Expander has all the channel strip features of the Mackie Control – only without the master section.

Several Mackie Control Extenders can be used together with a Mackie Control to emulate a large-scale control surface with as many faders and pots as desired.

• **Australian Audio Supplies 1800 50 20 15**

## RANE MOVES TO AUDIO TELEX



After a long and successful relationship with Rane, Jands have reluctantly advised Rane they are no longer able to represent the product in Australia.

There is a growing trend amongst audio manufacturers around the world to look for increased market share by developing products outside their traditional market. This trend often produces overlapping product lines and creates focus difficulties for local distributors and this has proved to be the case for Jands.

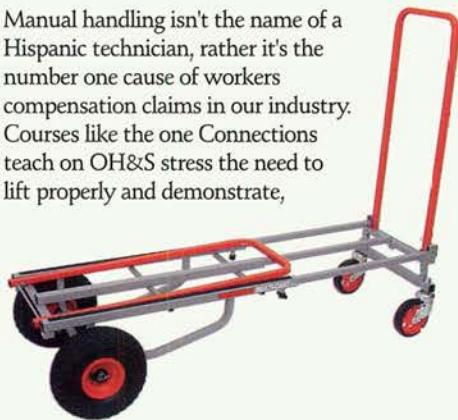
As Paul Mulholland explained "Despite the excellent business partnership we have established with Rane, due to conflicts of interest produced by other lines represented by the company, we could no longer do justice to Rane and were forced to relinquish the agency."

Jands have been the exclusive Australian distributor for Rane for over 15 years. During this time, the product has established an excellent reputation and enjoyed strong sales success in the Australian market. During the association, Jands staff members have built up close, personal relationships with the people at Rane. All parties handled the parting very professionally, and Jands wish the new distributor, Audio Telex all the best with the product line.

• **Audio Telex +61 2 9647 1411**  
[www.audiotelx.com.au](http://www.audiotelx.com.au)

## Carts to make OH&S officers happy

Manual handling isn't the name of a Hispanic technician, rather it's the number one cause of workers compensation claims in our industry. Courses like the one Connections teach on OH&S stress the need to lift properly and demonstrate,



through a workshop, the different abilities of people to handle equipment.

It is perfect timing then for the introduction of the Multi Cart line from CMI, who have managed to attach very keen pricing to what appear to be very useful carts.

This 'Rock n Roller' range change shape and length, and fold for storage. Looking at the example above, it can be adapted to a long dolly, a short dolly, a short or long platform cart, a 2

wheel handtruck, or a high stacker.

Models range from, the R-2, carrying 158Kg at \$195, the R-6 (226Kg, \$275), the R-8 at \$320 through to the R-10, which will handle 226Kg and costs \$345.

• **Details, CMI +61 3 9315-2244 or**  
[www.cmi.com.au](http://www.cmi.com.au)

## Redback Line Amp



Redback's latest amp is the A4060, a 1RU tall amp capable of 60W RMS in a 100V Line system. This Australian made product includes a balanced XLR input (with loop out facility), rear volume control, 24V DC emergency operation plus 100V, 70V and 4Ω speaker outputs.

It has an on-demand-fan, and Redback indicate that the measured distortion is typically <0.3% at 1KHz. Signal to noise ratio is quoted at >85dB.

• **Altronic Distributors 1300 780 999**  
[www.altronics.com.au](http://www.altronics.com.au)

## IMAGEPRO -GOBO SLIDE PROJECTOR



The Rosco Imagepro is a holder that fits into most modern 575/600 watt luminaires and accepts Rosco iPro slide mounts. A cooling fan and layered, reflective filters creates a protected environment for computer printed slides in the mount.

iPro slides can be created on a computer, and a large library of Rosco images is available. The new 'furgo' images can also be used in the Imagepro with lasting results.

Tested on fixtures of 600 watts at 100%, a typical iPro slide lasts for 30-50 hours or more continuously, with no degradation of the image.

Price of the Imagepro is \$425.00 (ex-GST), and the price of the slide holder to make your own images is \$60.00 (ex-GST). A Rosco slide in a holder is \$70.00 (ex-GST).

• Rosco +61 2 9906 6262

## ENTTEC New Device Library Website

Melbourne based lighting control manufacturer Enttec has just released the free Libmaker web application. This new web service allows users to create or edit their fixture libraries for use with their EVO and ShowEditor products. The website offers the official Enttec Library, where users can download fixture libraries as required. They can also register and create their personal libraries using the easy to use online editor.

The online editor also has an inbuilt integrity checker that will warn users of any possible inconsistencies or mistakes in their personal libraries. This free web service offers a centralized location for fixture libraries.

Go to [www.enttec.com/libmaker/libmaker.php3](http://www.enttec.com/libmaker/libmaker.php3)

• Enttec +61 3 9819 2433

## Avolites launches the Pearl 2004



Avolites new Pearl 2004 updates the Pearl 2000, providing new technology and offering a host of improvements.

Pearl's two-speed encoder knobs were custom designed and manufactured for the top-of-the-line Diamond 4 console. They have been carefully weighted and the optical encoders redesigned to make extremely smooth operation possible.

The front panel has been modernized and now uses the same highly durable, reverse printed, polycarbonate laminate technology as found on the Diamond 4 console. Pearl 2004 also uses the same professional master faders as the D4 for the 15 Cue Playbacks and Master Faders.

On the output panel, 2,048 DMX Channels are provided on 4 separate DMX connectors.

Internally, the software OS has been upgraded to the 2004 version. Many enhancements include the Colour, Gobo and Beam Tables, making it even easier to control complex, multi-channel fixtures like the High End X-Spot and the Martin MAC 2000.

Additionally, all Pearl 2004 consoles are supplied with a free suite of PC software, including the Pearl 2004 Simulation Program, Avolites Visualiser and the Cache Builder. Exact pricing was not available at time of publication. For more info, check the Pearl product page at [www.avolites.com](http://www.avolites.com).

• Universal Lighting and Audio  
1800 648 111

## Mipro Wireless

Mipro have released a clever multi channel (100 frequencies) UHF wireless system which allows users to simply press a button on the receiver to lock the frequency of the transmitter to the receiver. In addition, the ACT707S features a colour LCD panel on the receiver which indicates RF/AF, diversity signal metering and a 'fuel gauge' for the transmitter's battery. The ACT707S System including hand-held transmitter retails for \$1429 inc gst. A dual version is also available.

• Audio Telex +61 2 9647 1411



## New Audix kick mic

Audix Corporation, specialist drum and percussion microphone manufacturer, has introduced a new mic to the D series of professional instrument microphones, the D6. The D6 is about twice the size of the normal D series microphone, and uses the same low profile mounting clip as the rest of the series. With a frequency response of 30 Hz to 15 kHz, the mic has a cardioid pick-up pattern and the capsule features the D series VLM Technology. The unit is priced at \$645.

• Production Audio  
Services +61 3 9415 1585  
• [www.audixusa.com](http://www.audixusa.com)





## Witches of Eastwick opens, defeats jinxes

By Julius Grafton

**MELBOURNE:** Despite loud media rumblings that All Was Not Well, an extremely long preview season, and the rushed import of a UK star to replace a flu affected lead, *Witches of Eastwick* opened successfully at presstime.

The show, at the Princess Theatre is a musical that draws on effects, the crew were relaxed when I called during the preview run, and an unhurried, unhurried atmosphere prevailed. This is always a good indicator of a show's fortunes.

Technical Director Malcolm White explained that the set came direct from the UK, where the show closed recently.

A highlight of the show has the three witches fly through the front of the theatre. A system of winches, 32 in all, are controlled through software. Stage Technologies provided the system.

Malcolm explained it was tested with sandbags before the talent were flown for the first time, and that each reset took about an hour and a half. It involved dropping an onstage truss to reset wires, and driving scenery upstage. The system arrived a week before bumpin.

Lighting Designer Howard Harrison was replottting scenes with his associate Rob Halliday and Australian Season LD R2. Howard's authoritative voice could be heard in the circle, complaining about a chase. "Not happy with the movement". "Think it's clunky. It bugs me. The movement isn't clear. It's messy....." and so it went.

I cornered him as he went out to light up a gasper. I was clear that despite the tedium of previews, he liked the show.

"It's like old fashioned musical comedy meets rock and roll" he said. "This is scaled down from Drury Lane, the stage there is twice the size of this."

I asked how he would best describe his lighting of the show. "It's big, brash, cartoon like, larger than life", he replied.

Howard is no stranger to Australia, having lit *Mamma Mia* and *Copera* here before now.

His rig, from Bytecraft, featured Vari-Lite devices, in particular the VL6c. They do most of what you want a theatre fixture to do, and are half the size of a Mac 2K or an X Spot. They have a fast colour bump too."

Downstairs at soundworld a veritable smorgasbord of equipment encased system engineer and sound effects creator Paul Hitchens, who was running some checks with the playback system. The show is sound effect heavy, and a ProTools system provides playback. Each cue is sent to the house via a BSS Soundweb which can instantly reassign to seemingly scores of speakers here there and everywhere. The show uses a surround sound 5.1 style effects playback system.

Best sound effect of the show? An Insinkerator sound. Pro Tools sends it, Soundweb allocates it to a wireless speaker system on stage. Maybe cheaper to buy an Insinkerator?

The show engineer is Gillian Cowie, she mixes on a J Type Cadac console. System Sound director and partner Peter Grubb designed the show sound, using Meyer Sound speakers, a departure from the V-dosc based London design.

Other System Sound staff on the show include Amanda Stead and Stuart Kirby.

**Peter Grubb**, System Sound partner and show audio designer (left) with **Malcolm White**, Technical Director. Sound effects dude **Paul Hitchens** at top left. Lighting Designer **Howard Harrison** (below).



## Flying Pig Wholehog III - about to Ship

The long-awaited Flying Pig Systems Wholehog III console is now reportedly shipping from the Austin, Texas factory. Shipping with version 1.0 software, it is not yet clear when the desk will clear its order backlog.

The first five U.S. Wholehog III consoles and DP2000 DMX processing units were passed through High



End Systems' Austin Quality Control before being shipped to their various beta test locations in the US. Check out [www.flyingpig.com](http://www.flyingpig.com) for the new look and latest.

• ULA Australia 1800 648 111

## Australian control devices



There are many devices that try and address the issues of reliable control interface between a presenter and their remote computer. A series of devices from a new Sydney based manufacturer incorporates some ideas that are quite interesting.

The R1 provides one or more remote "mouse" buttons, which can control up to two separate computers - PC or Mac. With Y-Splits employed, the unit can run up to 4

computers for multi-screen presentations. The unit is housed in a solid, single rack-unit case, and all connections are XLR.

The R1 also interfaces with standard talkback systems. It can send tone to a single headset, or to the whole loop. The tone can be varied in pitch, volume & duration. The unit has 6.5 & 3.5 headphone jacks, a self test function and a built in speaker that can be easily switched off. It also

has an XLR relay output that can trigger user-configured external devices. The unit comes supplied with a lectern button, a jug plug and a talkback 4-wire extension cable. There is also a wireless adaptation for the system. The R1 is priced at \$450 (ex GST), and the host of optional extras are also reasonably priced and carefully detailed on his website.

• Call 0416 033 088 or go to [www.szikla.com](http://www.szikla.com)

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**Here is a sample list of gear we have available for Swap Sale or Trade. Call Neil, 0412 449-018**

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JBL 2470 1" Drivers {JBL 2470 Loaded}	\$300.00	Fender concert Amp. 60's Reissue	\$1500.00
JBL 2470 1" Drivers {Radian Loaded}	\$300.00	Altec Dual concentric 15 theatre Spkrs New	\$800.00
JBL 2220A 15" Spkr Mint 8 Ohm	\$250.00	Yamaha 2408 FES Serviced	\$1395.00
JBL 2220H 15" Spkr Mint 8 Ohm	\$250.00	EV Deltamax Processors {12 and Horn} New	\$1000.00
JBL K140 15" Spkr Ohm New recone	\$350.00	Gibson SG Special 1967	\$3000.00
JBL 2225 15" spkr 8 ohm	\$350.00	Hammond L122 Organ	\$2000.00
EV Dh1A 2" Driver	\$600.00		
EV Hp 64 Flares New	\$250.00		
JBL 2240 4 Ohm 18" Spkr New Recone	\$500.00		
JBL 2226 8 Ohm 15" Spkr	\$500.00		
Lexicon 224 With Larc option	\$6000.00		
Soundcraft 2400 32/24/8/2 Recording Desk	\$10,000.00		

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**Neil Smith**  
**0412 449018**  
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## SONY DMX R100 EXPANDED

Sony has released a new DMXR100 Automation Editor for their mid-market digital mixing platform via the DMXR100 web page at [www.sony.com.au/proaudio](http://www.sony.com.au/proaudio)

The major features for the off-line Automation Editor include standard Windows-based PC operation, files can be transferred between the DMX-R100 and PC either by floppy disc or serial cable, allowing a multitude of off-line edit functions.

The Automation Editor operates with the same familiar GUIs as used within the DMX-R100. Channel settings can be copied and pasted to other channels. All channel controls, including faders, knobs and buttons, can be individually set and adjusted off-line.

Channel sections can be switched in and out as complete blocks and fader groups can be set up and adjusted. Using Sony's CDRW66, 24bit SBM CD recorder the mix can be critically evaluated and new automation data can be created off-line.

The Automation Editor provides timeline-based automation data for individual controls which can be adjusted with common PC click/drag, copy/paste for editing and time-shifting within a channel or to other channels.

Fine adjusts can be performed for virtual rotary and linear controls using a mouse thumb-wheel operation. The download includes an operation manual with description on downloading and running the application.

NEWS: [mail@conpub.com.au](mailto:mail@conpub.com.au)



## PaTPad MOVING LIGHT MODULE LAUNCHED

Australian based lighting control system designer and manufacturer LSC Lighting Systems have announced the release of the PaTPad Moving Light Module for their popular maXim range of consoles.

Utilising Resistive Touch Screen Technology, the PaTPad is capable of controlling up to 20 Intelligent Lighting Fixtures at any one time. The PaTPad's advanced features include programmable palettes, presets and groups, extensive filtering options, cloning of looks, multiple storage options and a comprehensive fixture library.

All features are seamlessly integrated through the PaTPad's unique and easy-to-use

of the selected fixtures.

The PaTPad allows for up to 24 parameters per fixture - no upper limit is placed on the number of control channels allocated to each fixture. Any six parameters may be displayed and controlled simultaneously while all 24 are only one key press away. Individual move and delay times can be stored with each parameter. Filtering and storing according to Colour, Beam or Focus type is of course de'rigueur! Fixture templates are available from LSC's website or new ones may be created on a PC.

A maXim fitted with the PaTPad module is now the most approachable, full featured moving light desk available on the market, says LSC.

• Call +61 3 9561 5255 or [www.lscighting.com.au](http://www.lscighting.com.au)

## NEW BOX OF TRICKS FROM QSC



## Australian Monitor launch Pro Series

Australian Monitor are set to release the Synergy Series of amplifiers at PLASA in London this month. The goal was to produce a low cost range of amplifiers that was still built tough enough to handle hire work as well as installations - and still sounded good.

There are five amps in the series. Ratings are 200/400/600/800 and 1000 watts per channel @ 4ohms. All amps feature in-built limiters.

Pricing ranges from the SY400 (200w@4Ω) \$1060, through to the SY2000 (1000w @4Ω) \$2299.

• Audio Telex +61 2 9647 1411  
[www.australianmonitor.com.au](http://www.australianmonitor.com.au)

QSCC's DSP-30 (above) enables the laptop armed audio engineer to configure and lock, via password protection, an amplifiers' signal processing settings for a tour or installation.

Each two-channel DSP-30 is a one rack-unit digital signal processor with a wide range of functions, including screen channel crossovers, multiple parametric EQ's, time delay for surround channels, subsonic filters for subwoofers, compression/limiting, precision attenuation, mixing, plus tone or noise generation.

The DSP-30 features 24-bit converters and operates at a 48 kHz sampling frequency. Balanced Neutrik XLR's get the signal in and out. Retail price of the DSP-30 is \$1,595.

• TAG: +61 2 9519 0900. [www.tag.com.au](http://www.tag.com.au)

# The Installer's Flexible Friend

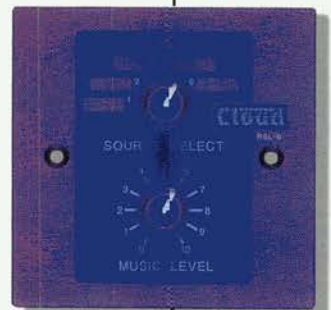


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## THX CERTIFIED: DYNAUDIO ACOUSTICS



Dynaudio Acoustics Air 15

THX has certified Dynaudio Acoustics' new intelligent AIR Series studio monitors for use in PM3 rooms. The awarding of THX PM3 certification for the AIR 6, AIR 15 and AIR Base-2 allows THX-approved production facilities to use the AIR technology and solutions. The AIR Series is a joint development between Dynaudio Acoustics and TC Electronic.

The AIR "intelligent monitor" concept incorporates advanced DSP and networking technologies to define a new level in performance and operational flexibility for professional studio monitoring. Central remote control, preset storage/recall & extreme alignment flexibility are just some of the many options offered by the AIR concept.

Configurable for both Stereo and 5.1 monitoring setups, AIR Series monitors are matched and interchangeable "out of the box" and provide full system integration, networking capabilities, Total Recall and central control functions. The complete monitor system is centrally controlled from either the front of a Master unit or from the optional Hardware or Software remote control packages.

- Amber Technology Ltd  
+61 2 9452 8600  
[www.ambertech.com.au](http://www.ambertech.com.au)
- [www.dynaudioacoustics.com](http://www.dynaudioacoustics.com)

## DMX Testing - Coemar DR1

Coemar are introducing a range of tools, the first of which is the DR1. Intended to eliminate the need to get access to several Coemar fixtures when programming or servicing, the DR1 allows users to check on the functions and functioning history off a fixture via DMX.

DR1 takes full advantage of bi-directional communications or DMX 512A. In plain terms, while most control devices only speak to the fixture, the DR1 also receives communication back from the fixture. When inserted into the DMX 512A chain, the device replicates all functions & information which until now were accessed only via a fixture's on-board display panel. A single DR1 allows the operator to remote access as many as 250 fixtures.

The DR1 can do things like alter the fixture's DMX address, select master or slave operating modes (in Panorama 250 Cyc, Panorama 250 Cyc C, iSPOT 150, ProSpot 150 LX, iCYC 250, Color Cyc 250LX), visualize error messages and auto-diagnostics, view fixture and lamp life readings, electronically calibrate and test motors



and check data signal reception.

Other accessories include the DR1 PCB sensor test, enabling a technician

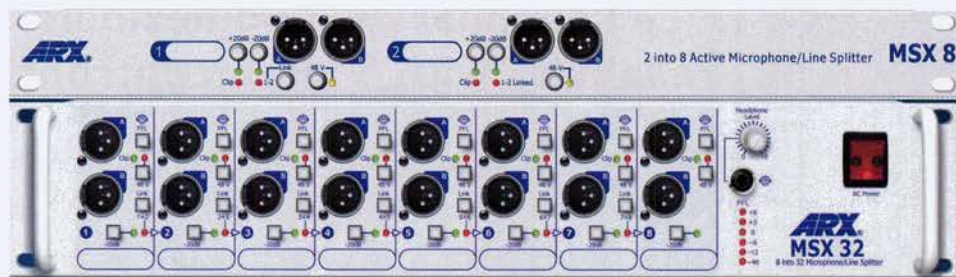
to interrogate the thermal, magnetic, light and movement sensors of the fixture helping to determine point of failure.

BI Directional Opto Splitter 6 (BIDOS 6) is a powerful opto-splitter with bi-directional compatibility that accepts the DMX 512-A control signal. BIDOS 6 introduces a new level of functionality in the area of data exchange between projectors, controllers and peripheral devices such as the DR 1.

The release of DR1 and similar devices creates the need for this bi-directional opto-splitter. Until now, one never existed. BIDOS 6 is available in two versions either for rack or truss-mount installations. The DR-1 is priced at \$968.

- Coemar De Sisti Australia  
+61 3 9467 8666 [www.cdaust.com.au](http://www.cdaust.com.au)

## ARX Release MSX8 and MSX32 Mic/Line Splitter



ARX Systems have finally announced the long awaited release of the MSX 8 and 32 Active Mic/Line splitters. Previewed at ENTECH last Feb, a component supply issue has now been solved, & the units are set to go into production.

According to ARX, the active microphone and line splitting system they have designed has a number of benefits over passive splitters: primarily these are improved sound quality, noise figures comparable to the best microphone inputs, increased resistance to RFI, consistent microphone load and where required total signal Ground isolation between outputs.

The MSX 8 consists of two channels of actively buffered ultra low noise Microphone/Line Splitter (the MSX32 has 8ch). On both models, each of these channels has four electronically Balanced splits – two on the rear panel, plus two more on the front panel. All four output splits have the option of transformer balancing if required.

A 'Link' switch provides an ultimate maximum of 8 outputs on the MSX8 and 32 outputs

from a MSX32 - all from a single input, ideal for multiple Press Splits. Each channel has a -20 dB pad switch and a +20dB Gain switch, plus silently switchable 48V Phantom power with indicator LED. Additional features on the MSX32 include signal monitoring, provided visually by a LED Meter indicating Channel Level and audibly by a Headphone Output selected by way of the Listen / PFL switch on each Channel, the monitor circuitry can also be bussed with other MSX 32s in multi unit splitter systems.

There are three different configs the MSX can come in – E (all electronic balanced outputs), TS (Split 1 & 2 = transformer balanced, Main & Mon = electronic) and TALL (Transformer balanced on all outputs). Pricing is as follows: MSX 8E - \$1199, MSX 8TS - \$1370, MSX 8 TALL - \$1550, MSX 32E - \$3825, MSX 32TS - \$5210 and MSX 32 TALL - \$6575.

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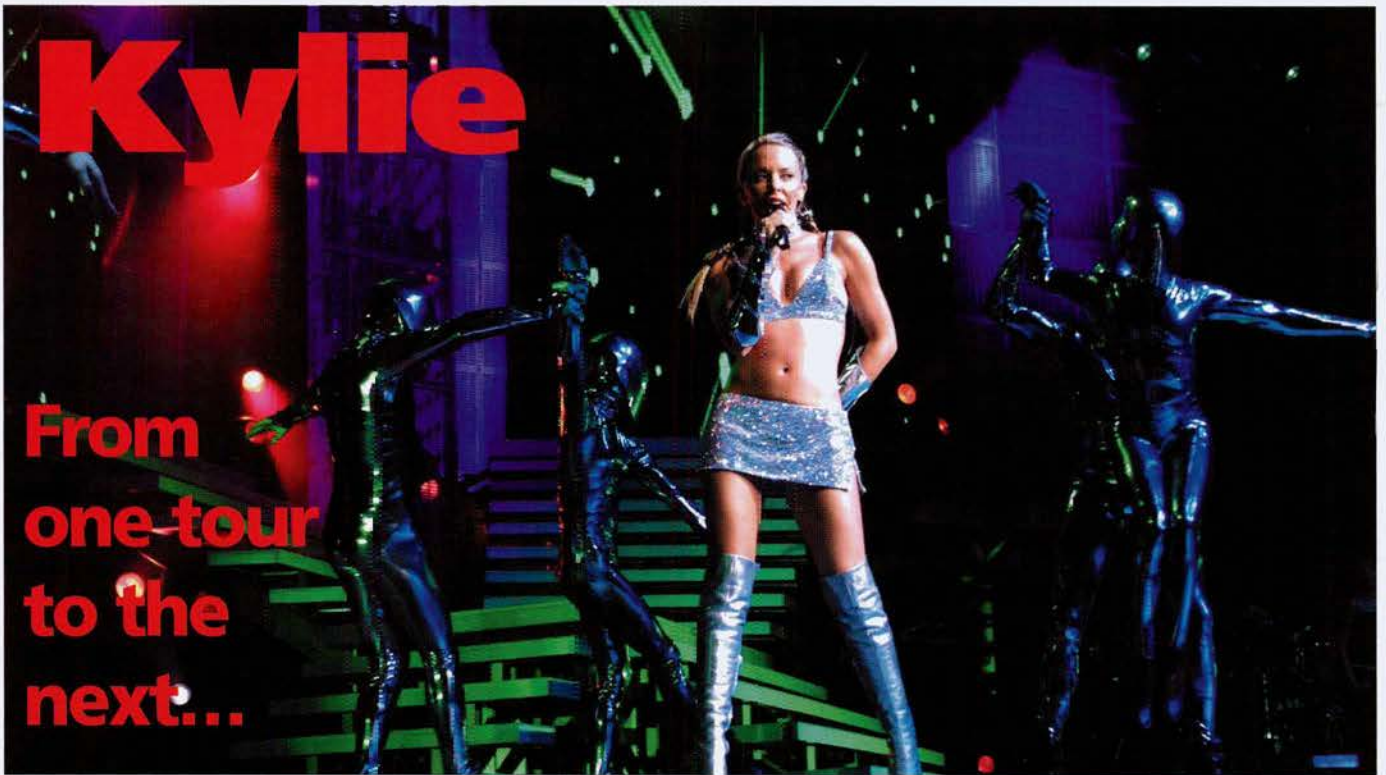
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What is it that takes a show, and then makes it a "Great" show? The answer to this question has been long sought after. Everyone is keen to find that balance between the financial bottom line and creative requirements. Kylie has invested a great deal of money into this show, and the result is spectacular...

by John Grimshaw

There is no doubting that the recent tour by Kylie Minogue is a major step up in production values from the show she toured only a year ago. Most of the same faces from the last tour are back again - but this time there was an apparent "spare less expense" approach to the show's overall design that really made for an extremely polished production.

Of the show itself, the Kylie fans certainly had something to scream about. Though not a fan of her music, this is one of the best shows in terms of production quality this writer has seen of late. Slick production, punchy and clear sound, a non-stop performance of dancers and, of course, Kylie. This show obviously brings the skills of many talented people together.

The technology plays an integral part of the performance. Five large Barco D-lite LED screens run as a constant visual backdrop to the performance - not with camera images of the show, but nearly two hours of non-stop, carefully created and edited vision, which the dancers and Kylie can directly interact with. This gave the whole show a very "video clip" feel, which, coupled with some very good lighting design, kept the event visually interesting from the first to the last note.

The vision on the screens is triggered by an Akai sequencer under control of the drummer and musical director. MIDI signals travel to a bank of Doreni VID hard disk vision (SDI) playback units, triggering the start for each song. The images then seamlessly become incorporated into the show. The screens themselves

were specially flown in by the production because these super high resolution LED screens are not available locally. For those that have only seen the (by comparison) low quality / low light LED screens currently available for hire here, the light output of these screens would blast you out of your seat, and easily matched the visual intensity of the X-spots favoured by the lighting designer, Vince Foster.

Vince rarely tours these days, preferring to keep close to his home base in the UK. This tour he made an exception, driving the Wholehog II console and calling the dome cues with the same ease that a concert pianist can play "Happy Birthday". The design concept for this show began in September last year very shortly after the end of the previous tour. At the time, with Kylie's new singles doing so well, the creative team of Vince, set designer Alan MacDonald and Kylie's creative director William Baker started floating ideas for the tour. Vince rendered up some concepts using Vectorworks, and the pre-production was underway. Within a month they were calling the production staff to secure them for the new tour.

Numerous bits of technology were specially brought in. In the lighting world, the Supercyc 2.4K's by Coemar was airlifted in. These are a very nifty twin 1200MSR/MSD lamp device, with full 360 pan/270 tilt control, electronic ballast (flicker free), CMY colour and single/dual lamp operation. These units are being specified more often on international tours, so you may see them enter the hire inventory of a couple of the local major hire companies.

On the vision side of things, a four camera mix was sent to two side screens projected by Barco G5s. This was another element of slick production that really enhanced the whole show



Vince Foster - relaxed before the gig



The brightness has to be seen to be believed - this shot of the Barco LED screens in action prior to the show gives an indication of the amount of light they emit - especially when compared to the image on the traditional projection screens.



Kylie Minogue "Fever" Tour / System by Capital Sound, UK

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



**Lights Used...**

**Moving Lights**

44x High End Studio Colour "S", 16x High End Studio Color 575, 10x High End Studio Spot CMY, 24x High End PC Beam, 30x High End X-Spot

**Other lights and effects**

21x Par 64, 8x Par 64 stubbies, 1x Desisti 5kW Fresnel, 9x LSD 8 Way Par 36 arrays, 5x Lycian Starklite HMI1200 (spots), 12x UV Floodlights 400W, 44x Dataflash AF1000 DMX Strobes, 9x Arcline Jetstrobe, 24x Wybron 7.5" Scrollers

**Control**

3x Whole Hog II, 4x Bytcraft 48 way touring dimmer rack, 3x Bytcraft 48 way APC touring rack, 10x Bytcraft APC 2x 2.5kW Dimmers, 16x Bytesupply 12x 10a Distro



Chris Pyne with the Midas XL4 - the XL3 "sidecar" (right) is used for the warm up acts.



Must be hard to find good monitor engineers at the moment!



Stefan "Smasher" Desmedt with the Doremi HD playback system for the LED screens.



Chris Keating with the vision mixing system used to supply vision to the side screens.

– the vision switching and camera direction was VERY tight. With all of the operators and director touring with the show from Europe, this was to be expected. It is very easy in this type of event for the side screens to become distractions to the main show, and look like a last minute add on. In this case, it was clear that a lot of thought had gone into knowing exactly where the cameras should be for those "magic" shots – and there are plenty of those throughout the evening. Chris Keating – who was one of the many that toured with Kylie last time, was the camera vision director on both tours.

For the last tour, Channel Seven secured the rights to broadcast one of the Sydney shows. When new tour was in preparation, the production team thought that they could mix a better version of the show for DVD release, and this task was added to Chris's responsibilities.

**Getting the Big Picture**

**Dennis Murphy talks about the Kylie Tour**

Big Picture is supplying all the vision equipment (except the Barco LED screens) and crew on behalf of Blink TV (UK), who provided video services to the Kyle tour in Europe and the UK. Big Picture has provided its new serial digital touring system for the Kylie shows in Sydney and Melbourne. Built specifically to cater for more complex applications the system provides a Leitch 32 x 32 router, with Talia router distribution, Snell and Willcox component to serial digital conversion and Provideo signal distribution. The system switcher is a fully optioned Sony DFS700P.

We are also supplying 4 x Sony DXC-D35 camera chains comprised of a 44-1 long lens at front of house, 2 x pit cameras on dollies with 19-1 lenses and a handheld camera on stage with 5.5-1 wide angle lens. 2 x SP Betacam VTRs configured as an edit pair provide playback of the preshow package as well a recording of each show. A Sony PD100P DVCAM camera is also used to provide a closed circuit surveillance shot of the stage confirming all screens operation.

Projection consists of 2 x Barco G5 DLP, 5000 ANSI lumen projectors onto 2 x 20' x 15' screens. The projectors are fed with a serial digital signal.

To ensure continuity of show coverage we had extensive advance communication with the UK crew chief Stuart Heaney who provided a detailed system specs. We imported an Egriment Focus camera dolly system from the UK and replicated the side mounted viewfinder system that the crew had been using in the UK and Europe. This ensured an easy transition for the camera operators and maintained the high standard of coverage achieved on the previous legs of the tour.

The 5 LED screens are Barco Daylight 18mm pitch fed by Barco processors which achieve a virtual pitch of 10mm. The LED screens and replay system were imported specifically for the Kylie tour. The screens are fed SDI off 3 x Doremi V1D hard disc devices via a Leitch SDI router all controlled by Dataton software.

The Dataton is fed MIDI from the stage hence all hard disc cues and routing are automated, ensuring accurate replays and perfect sync every show. Audio from the Betacams and the Doremis is sub mixed onto 2 group outputs of our Allan and Heath 14-4-2 console

Chris says he is quite proud of the result - if the current tour is any indication, it should be quite impressive.

FOH audio is provided by the same V-dosc configuration that Kylie toured with last year. Brisbane based FOH Engineer, Chris Pyne has numerous international gigs under his belt, with this and the previous Kylie tours keeping him busy for the moment.

Some of the newer widgets he has used this time round include some new Drawmer 501 Power Gates, Sennheiser's new 5000 series RF system and some Neumann hand made mic capsules for a more upmarket vocal system.

The next major hurdle for Chris will be Kylie's appearance in the US at a "Rumba" type of festival that tours major cities across that country. It will be a cut down version of the current show, to run only 30min.

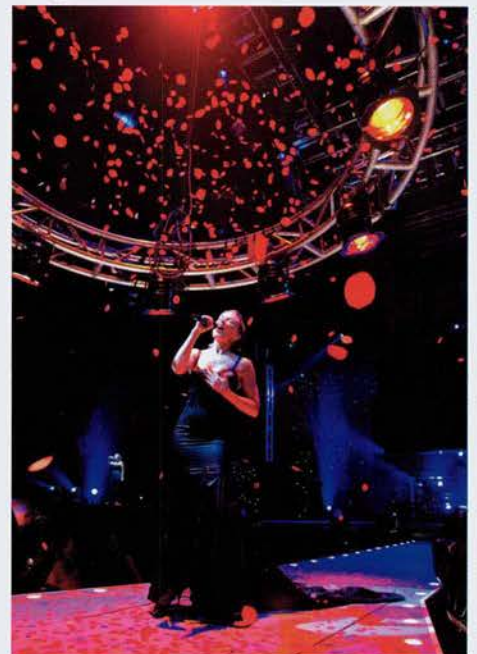
and fed to the PA. We also receive a stereo send from the PA and this is fed to record VTRs.

A 2 way "shout" comms circuit is also used to facilitate comms between audio monitors, the keyboard/MIDI tech onstage and the video control area.

In the week prior to load in at the SEC, Big Picture took delivery of the imported video equipment and made our premises available for advance system testing and prep by Kylie video techs Stuart Heaney and Stefan "Smasher" Desmedt. As a result the visiting crew were confident in all systems operation prior to installation.

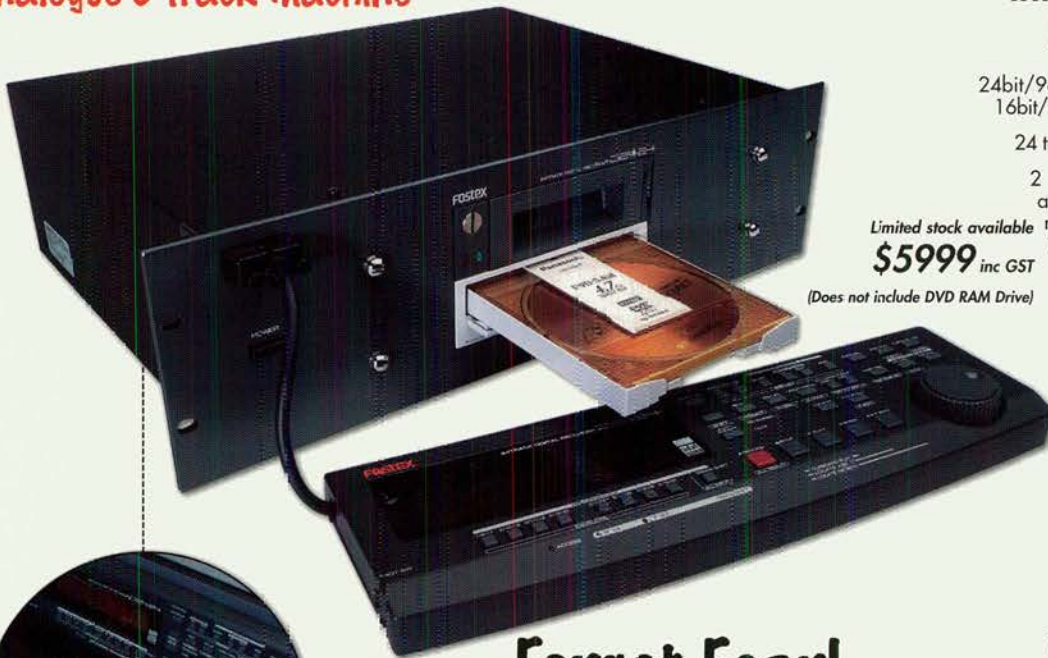
Overall the tour achieved a successful combination of local and imported systems and crew and the resulting visual elements of the shows were well received. Chris Keating (Director), Stuart Heaney (Crew chief/projectionist), Stefan "Smasher" Desmedt (LED technician), Jereon Marain (Camera), Roger Nelson (Camera), Honie Rowley (Camera), Emilio Ebonizio (Camera), Dennis Murphy (Engineer)

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# Fostex

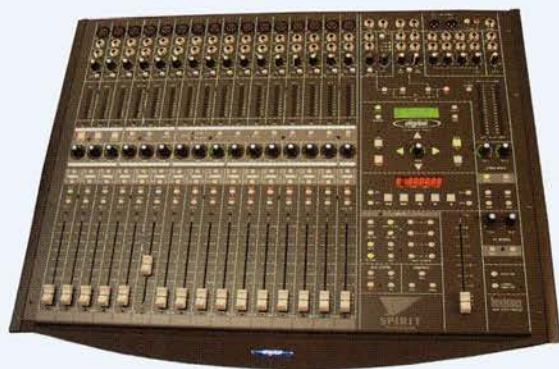
Digital mixing consoles are the 'now' technology. We took a new Behringer 3216 and put it up against Soundcraft's Spirit Digital 328 and Yamaha's 03D.

# Behringer's Danalog takes on big 2

By Julius Grafton



Direct from China, here's the new Behringer 3216!



Half a world away, Soundcraft Spirit 328 is made in the UK. Meantime, Yamaha's 03D (below) is made in Japan.



Behringer's DDX 3216 'danalogue' mixer was eagerly awaited, with a fair dose of scepticism. Would it be VERY similar to other products, thus following a Behringer trait of polite mimicry, or was the German/Asian conglom going to come up with something new?

Straight out of the box, it looked typically Behringer, and those rotary encoders at first glance looked a little familiar.

We lined it up with Yamaha's 03D and Spirit's Digital 328, the nearest comparable devices. Ramsa and Tascam make digital consoles in this category too, but these three aspire to be more things to more people.

So let us compare. Here we go with our super condensed feature comparison.....

Behringer comes in a rack-width chassis, slightly deeper than the Yamaha which also can rack mount. Spirit is a wider, console type of beast. Behringer and Spirit boast 100mm faders, Yamaha makes do with 60mm. All are motorised. Behringer offers a 16 segment input LED strip beside each fader, Spirit offers 10 segments, and Yamaha make you refer to the screen or the PFL meter ramps.

Yamaha have the select and see system where you press a channel select button, and look at the ample 90 x 120mm screen. Most parameters need to be seen on the Yamaha screen, whereas Behringer have included a row of rotary encoders, one on each channel strip, which become auxiliary sends. At first glance, the Behringer seems to borrow from the Spirit, where each channel also has a rotary encoder. But there the similarities stop.

Spirit pioneered a neat system where the 16 rotary encoders act as a channel strip, albeit laid out across the desk instead of vertically. It means you see at a glance what you need to see, provided you have selected a channel. Spirit's rotary encoders have 15 little green LED's around the outside to approximate their settings, which are confirmed in the tiny little bitty almost-mobile-phone-sized display screen.

Behringer's rotary encoders offer 11 red LEDs, adequate considering their screen is second only to Yamaha in size. And, I say you need a screen to finesse most settings on any of these desks.

The Yamaha desk makes you look at the screen all day. Just as well Yamaha's screen is the best of the best.

But oldest aint slowest, since 03D boots up in 9 seconds, against the new Behringer's 17 seconds. Sometime somewhat later, the little pac-man show on the Spirit screen stops after an eternal 52 seconds. At this stage one starts to understand why Spirit has only a few dynamic effects – due to lack of processing power. More on this later.

We tested EQ, and report that the Spirit system is fastest to use, because the three fully parametric bands of EQ are represented by nine rotary encoders. So, select channel 4 and set the EQ. Select channel 10 and adjust it again. Easy when relying on the rotary encoders but confirming what is exactly going on is tedious because of the tiny screen.

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And having the parameter you are altering *flashing* at the same time makes it very hard to read. Spirit's screen is a problem.

Soundcraft Spirit comes complete with TDIF, optical and AES-EBU inputs and outputs. No optional cards required.

Yamaha make you select the channel, then viewing the screen, you adjust the parameters of the four way fully parametric EQ using four cursor buttons and a jog-shuttle parameter wheel. You can do it without taking your eyes off the screen.

The Big B goes slightly differently in the EQ dept, with six rotary knobs under their screen, which assume the function as EQ controllers when EQ is selected.

**Equalisation summary:**

Spirit short change you with three band EQ, Behringer give you knobs, while Yamaha relies on the wheel. But the Yamaha screen wins the day, showing far more info than Behringer, and as for Spirit – its almost 'what screen'? They argue you see all their encoders, so you don't always need a screen

Behringer give you 4 omni (user assigned) outputs, just like Yamaha do. They offer two optional card slots, the Yamaha offers just one. The Behringer offers the most features for the least dollars here.



We've jumped the gun a little since we haven't talked about ins and outs. Yamaha offer six auxiliary sends, as does Spirit, while Behringer stretch to eight. Outputs are not a problem.

Here's the Yamaha 03D, shot from the rear end. Notice the optional 8 input analogue-to-digital card? This is the simplest (and cheapest) way to get more analogue inputs. See also the Phantom Power switches on the eight XLR inputs.

But inputs are where the smoke and mirrors staart. All three desks have 16 inputs

with gain trim controls, Behringers are not uniformly above each channel strip.

All desks have a second layer of inputs-meaning different things. Behringer and Spirit can mix 32 inputs, while Yamaha offers 24 plus a stereo input for 26 total. But here's where it gets interesting.....

Behringer have 12 XLRs and 4 balanced jacks for a grand total of 16 analogue inputs. More can be had if you buy an optional IP (input) card in TDIF, AES-EBU or Optical (Adat) flavours. Then you would need an additional A/D preamp unit to hook into the digital IP



actually get your analogue devices plugged in.

Spirit go the same way, offering 16 XLR inputs, but with inbuilt TDIF, optical and AES ports. You still need external A-D preamps to get anything lese plugged into a meaningful input – although there are extra direct stereo inputs without EQ on the top right of the desk.

Yamaha offers 18 balanced inputs, 8 of them on XLRs. They have one slot for an optional input card, which come in TDIF, optical or .... wait for it..... 8 channel A-D. This is the kicker, because it means in the case of our review unit, we had 26 balanced inputs. Cost is a factor, because adding on a card PLUS an 8 channel preamp/AD will cost you around 3 grand for the Behringer or the Spirit – whereas the Yamaha card costs under a grand. You'd expect Behringer to make an AD card with 8 balanced jack inputs on it, sometime REALLY soon now!

Naturally, many people are not interested in a lot of inputs, or may wish to derive those inputs digitally from TDIF or Optical. In which case, Behringer and Spirit offer more actual controllable channels with 32, vs. 24 (plus stereo) on the 03D.

Phantom powering those analogue inputs is an issue too, Yamaha offer a separate switch on each of the first eight inputs. Behringer give you the choice of phantom on channels 1-6 and 7 – 12 via two switches. Spirit had me searching for 20 minutes to find a solitary phantom switch for all 16 inputs.

In effects world, Yamaha offer two SPX styled effectors, plus noise gates or compressor (dynamics) on each input channel. Behringer go further, serving up four effectors, plus a noise gate AND a compressor limiter on each input. Spirit has two Lexicon effectors, and a single noise gate and a single compressor limiter, assignable where you want. Their new XD model, short for Extra Dynamics, expands this at extra cost.

TPAC's Michael Orland, my 'ears' for this test, reports the Behringer effects sound: "very nice, dare I say, almost SONY like. They've got that right! Effects are like cars, it is a very personal choice" he added.

Michael put the three desks through their paces, and reports noise is not an issue. "The Behringer is crystal clear, and with the Spirit are slightly more transparent than the Yamaha. But doing an A-B-C comparison between all three is fussy territory."

The Yamaha desk has more than 3 years head start on the other two, so it processes inputs and outputs at 20 bit, vs. 24 bits for the Spirit and the Big B.

# Absolute power corrupts. **Play on.**



Getting the right “unplugged” sound with your acoustic-electric guitar isn’t as easy as it sounds. Your electric guitar rig won’t do the job – it’s designed to add lots of coloration to the sound, not to accurately reproduce the rich harmonics and transients of your acoustic guitar.

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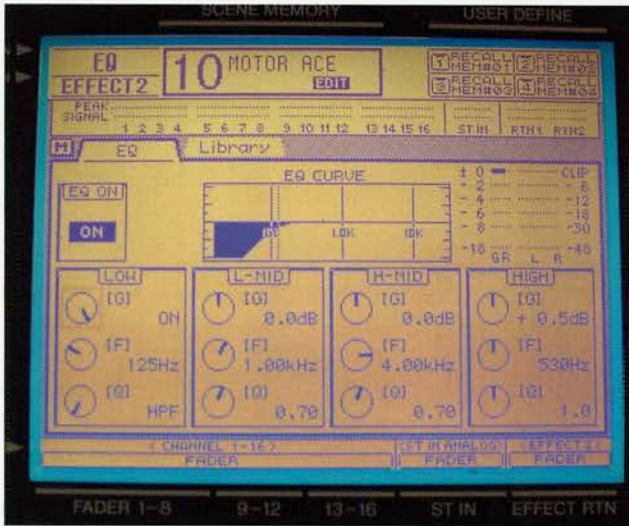
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If you play intimate gigs in small clubs or coffeehouses, EON G2 with its built-in mixer and microphone input may be everything you need. If bigger stages and venues are where you play, EON G2 is right at home as your on-stage monitoring system. It even has a built-in, balanced direct output to hook up with the main PA.

So, when you’re looking for an acoustic guitar amp – maybe the place to look is in the pro audio section of your favorite JBL Professional authorized dealer.





Yamaha's 03D has the best screen in terms of detail and size (above). You can see the EQ settings at a glance, the way you are used to. The jog-shuttle wheel is used to increase or decrease each setting. Cursor buttons make navigation easy and really fast.

Behringer screen (below) is good. Six rotary controls assume the EQ task when EQ is selected from the switches at left. We prefer Yamaha's EQ screen display (top).



Which is the better method? From here onwards each desk devolves off into a myriad of features and options that run very, very deep. All offer snapshot automation, the Yamaha has 50 scene capability, Spirit offer 'up to 100', probably depending on how many parameters are selected, and Behringer up to 128 scenes. Some limited timed automation is possible on all these desks, but that's not what you are buying them for, is it? Finally, what about the tactile quality of each desk? Or, the 'wow' factor as you sit with both hands on top. Yamaha's grey/black finish is refined, and the chassis has that Yamaha tough feel all their pro gear attains. Their switch actions are positive, the screen the right size, and the jog/

Where the three desks differ the most is in how they send auxiliary mixes. Yamaha flip the faders into auxiliary send mode, requiring the fader motors to do some more work. Behringer simply assign the rotary encoders to whichever auxiliary is chosen. Spirit ask you to go to the relevant auxiliary rotary encoder on the static channel strip, like you would on an analogue console.

shuttle wheel in the right place. Compared to the other two, the 03D has a less cluttered feel to its facia with less controls.

Spirit's black console finish is fairly reminiscent of an average analogue console. It has the best fader ergonomics of the three, but the worst push switches, which have a claggy and resistive feel. The Spirit has the sexiest lightshow.

Behringer's silverish anodised facia is an acquired taste, its faders are made by Alps and feel similar to Soundcraft's, and the push buttons feel OK but not as good as Yamaha's.

**CONCLUSION**

Soundcraft's Spirit Digital 328 (and its newer derivatives, 328XD and 324) are all essentially the same platform. Their layout, with the 'E strip' horizontal encoders, is a VERY clever concept. What sends it to the bottom of the list in this review is price (A\$13,995 or A\$15,995 for the XD model), the lack of an affordable way to get extra inputs, three band EQ, and the lack of processing power.

Behringer's 3216 is a good new direction for this secretive company. Borrowing little from anyone else, it represents an enormous amount of work from the Phillipines software lab that Uli Behringer works from. The 3216 lists at a very keen A\$4499 and the optional cards start at A\$749. But you then need an additional A/D preamp to get more inputs, and this will cost you around A\$2000 or so. I think Behringer will do very, very well with this console, even if it'll initially compete against the growing number of pre-loved Yamaha 02R's out there.

Yamaha's 03D won this comparison, because after almost five years it does what it does so damn well. It is a proven, dependable design, albeit slightly behind the Behringer in features. As far as we are concerned, it has a more professional feel to it. The Yamaha lists at A\$7,295, and the optional 8 channel analogue input card at A\$995.

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- Strobe/shutter
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For this month's professional audio report, we take a look at Signal Processors and DSP Systems.

# Processing and Control

Here, you will see everything from an inexpensive analogue dual 15-graphic to all-in-one signal control solution that could replace 5 or six rack devices. The prices vary greatly as well, from \$249 to \$15k, so to bring some order to the wide variety of product currently available we have arranged the report across two categories.

(continued pg38)



Klark Teknik DN 360

## Analogue Equalisers

**Alto EQU215** Stereo 15-band graphic EQ; 1RU; In/Out: Balanced XLR, TRS; RCA I/Os, Signal Filter: Switchable hi-low pass-filters, External Control: Bypass function, Other: Ground "Lift" sw. disc. signal grd. from chassis \$299



**Amek System 9098** Mono 4-band EQ; 1RU; In/Out: Mic/line in; Mic amp/ EQ out, Signal Filter: 4-band EQ; Parametric mid sections & HPF & LPF, Other: Designed by Mr Rupert Neve \$4,795

**ART ART HQ31** EQ; 2RU; In/Out: Bal XLR + jacks I/O, Signal Filter: Hi pass low pass filters, Other: Feedback detection circuitry \$849

**ARX EQ 60** Dual 30-band EQ; 3 RU; In/Out: Bal. I/O XLR & TRS, Signal Filter: Switchable high pass - 6dB or 15 dB; ground lift, External Control: N/A, Other: Ultra low noise; Constant Q \$2,005

**Audient ASP-131** Mono 31-band EQ; 2RU; I/O: XLR & Klippon/Phoenix I/O terminations, Signal Filter: EQ, cont. variable HPF, "Tilt" control, Other: Dual mode-norm reciprocal boost/cut or high Q cut \$2,499

**Audient ASP-231** Dual 31-band EQ; 3RU; In/Out: XLR & Klippon/Phoenix I/O terminations, Signal Filter: EQ, cont. variable HPF, "Tilt" control, Other: Dual mode-norm reciprocal boost/cut or high Q cut \$3,699

**Behringer T1951** (\*uses tubes), Parametric EQ; 2RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: Tube parametric 4-band EQ, Other: Bypass per ch & band; Constant Q \$599

**BSS DPR-901II** Dynamic equaliser; 1RU; In/Out: 1 or 2 ch. I/O; XLR, Signal Filter: Freq selective dynamic EQ (-30/+16dB), External Control: N/A, Other: 1ch 4-band or 2ch 2-band operation \$3,895

**BSS FCS-966** (Opal Series), Stereo 1/3 octave equaliser; 3RU; In/Out: Stereo I/O; XLR, jack & screw term, Signal Filter: 30-band constant Q, +/- 15dB, External Control: N/A, Other: Long throw (45mm) faders; HP filter, LF, HF contour \$2,595

**DBx DBx-2231** (20 Series), Graphic equalizer; 3RU; In/Out: 2 I/O, Signal Filter: 2ch, 31-band EQ, 1/3 Octave, Other: Limiter type III noise reduction \$1,695

**DOD / DIGITECH SR-2310X** EQ; 2RU; I/O: Dual Mono I/O Balanced XLR & Jack, Signal Filter: Selectable 6 / 12 dB Travel on Faders, External Control: N/A, Other: LED Status Indicators \$595

**Inter-M EQ-9131** Graphic equalizer; 1RU; In/Out: 1Ch 31-band, Signal Filter: 1/3 octave 20Hz - 20kHz +/- 12dB, External Control: EQ level control, EQ on/off switch \$651

**Inter-M EQ-9152** Stereo graphic equalizer; 1RU; In/Out: 2Ch 15-band, Signal Filter: 2/3 octave 20Hz - 20 kHz +/- 12dB, External Control: EQ level control, EQ on/off switch \$583

**Inter-M EQ-9231** Graphic equalizer; 2RU; In/Out: 2Ch 31-band, Signal Filter: 1/3 octave 20Hz - 20kHz +/- 12dB, External Control: EQ level control, EQ on/off switch \$906

**Jedia JED JEQ215A** EQ; 2RU; I/O: Bal XLR I/O, Signal Filter: Hi/Low pass filters, Other: Bypass / Clip LED \$699

**Klark Teknik DN 360** 1/3 Octave EQ; 3RU; In/Out: Dual Ch. on XLR I/O, Signal Filter: 1/3 octave fixed centres, External Control: Transformer option, Other: 60mm faders \$4,151

**Klark Teknik DN 410** Parametric equaliser; 2RU; In/Out: Dual Ch. on XLR I/O, Signal Filter: Dual 5 band parametric, External Control: Transformer option, Other: Linkable as a single 10-band \$5,648

**LA Audio EQ231GSP** Stereo 31-band graphic EQ w/ dynamics; 3RU; In/Out: Signal Filter: Variable freq. shelving EQ & low/high pass filters, Other: Fast RMS detector & Dbx soft-knee; Phase Rev. \$3,695

**LA Audio EQ231S** Stereo 31-band graphic EQ; 2RU; In/Out: Balanced I/Os, Signal Filter: High pass filters, Other: Centre detented faders & 'venue humidity' control \$2,295

**Lem EQ311** 31-band EQ; 1RU; In/Out: XLR/Jacks + unbal. RCA I/O, Signal Filter: Hi/low pass filters, Other: Clip LED - sturdy construction \$399

**Lem EQ312** Dual 15-band EQ; 2RU; In/Out: XLR/Jacks + unbal. RCA I/O, Signal Filter: Hi/low pass filters, Other: Clip LED - sturdy construction \$649

(continued pg38)

Brand	Company	Phone	Web	Analogue/DSP
Alto	Music Link	+61 3 97656565	www.altoproaudio.com	5 3
Amek	ATT Audio Controls	+61 3 9379 1511	www.attaudiocontrols.com	3
Aphex	East Coast Audio	+61 3 96963430	www.eastcoastaudio.com.au	20
ART	Network Ent. Technology	+61 2 9905 5997	www.network-et.com	4
ARX	Resource Corporation	+61 3 9877 8233	www.trc.com.au	29
Ashly	Corporate Audio Services	+61 3 9474 1066	www.corporateaudio.com.au	3 3
Audient	Corporate Audio Services	+61 3 9474 1066	www.corporateaudio.com.au	2
Audio	TAG	+61 2 9519 0900	www.tag.com.au	1
Avalon Design	Mixmasters Productions	+61 8 8278 8506	www.mixmasters.com.au	8
BBE	F. Payton & Son	+61 2 9439 1822	www.bbesound.com	6
Behringer	Behringer Australia	+61 3 9877 7170	www.behringer.com	24 6
Biamp Systems	Audio Products Australia	1800642922	www.audioproducts.com.au	4 4
Bose	Bose	1300 368 436	www.pro.bose.com	1
BSS	Jands	+61 2 952 0909	www.jands.com.au	12 4
Celestion	Network Ent. Technology	+61 2 9905 5997	www.network-et.com	1
Cloud	Bose	1301 368 436	www.pro.bose.com	1
Crown	Jands	+61 2 9582 0909	www.jands.com.au	3
DBx	Jands	+61 2 952 0909	www.jands.com.au	23 10
DOD / DIGITECH	CMI	+61 3 9315 2244	www.cmi.com.au	21 6
Drawmer	Studio Connections	+61 3 9874 7222	www.drawmer.com	15 3
ETEK	CMI	+61 3 9315 2244	www.cmi.com.au	9
Eventide	Syntec International	+61 2 9417 4700	www.syntec.com.au	3
Fostex	Syntec International	+61 2 9417 4700	www.syntec.com.au	1
Inter-M	magna systems	+61 2 94171111	www.inter-m.com	6 3
Jedia	Network Ent. Technology	+61 2 9905 5997	www.network-et.com	4
Klark Teknik	EVI Audio	+61 2 9648 3455	www.eviaudio.com.au	4 4
LA Audio	TAG	+61 2 9519 0900	www.tag.com.au	3 1
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MindPrint	Sound & Music	+61 3 95285744	www.sound-music.com	3
Peak Audio	CMI	+61 3 9315 2244	www.peakaudio.com.au	12
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SM Pro Audio	Sound & Music	+61 3 95285744	www.sound-music.com	2
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Symetrix	Production Audio Services	+61 3 9415 1585	www.productionaudio.com.au	5 5
TC Electronic	Amber Technology	+61 2 9452 8600	www.ambertech.com.au	1 4
TL Audio	Audio Products Australia	1800 642 922	www.audioproducts.com.au	12
TOA	Audio Products Australia	1800642922	www.audioproducts.com.au	2 2
Tube-Tech	Amber Technology	+61 2 9452 8600	www.ambertech.com.au	4
XTA	Production Audio Services	+61 3 9415 1585	www.productionaudio.com.au	1 7
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Join Hillsong Production Manager **David Watson**, (left) and Sydney Opera House Audio Chief **David Claringbold** (right) as they detail their philosophies and reasons and lay out the arguments in favour of their choices. Learn how this could apply to your venue or inventory!



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What are your console options for the next five years? Who is making what, and when? How do today's digital mixing platforms compare to analogue desks?

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John Bates of the Australian Entertainment Industry Association (AEIA) will talk about the development and implications of the document they and the MEAA produced - the "Safety Guidelines for the Entertainment Industry".

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**Workplace** John Grimshaw will talk about the latest draft of the national qualifications for technicians currently being put together by Create Australia. He will provide an insight into the development of the new qualifications and what venues can expect from people that have specific qualifications.

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The search for new and better devices. Where's my wireless DMX?

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Michael Hassett, owner of Technical Direction Company, will talk about image-blending (the very latest imaging buzz word) to produce seamless landscaping of multiple sources. He will also discuss image creation using a specially adapted version of PowerPoint.

##### State of the Art: Projectors

We show, demo and detail the some fine examples of new projection technology. Talk with our panel about what best suits your application.

##### Vision in Live Performance

The growth of big screen images in Live Entertainment has seen a marriage between

presentation and broadcast technologies. One of this country's premier production vision specialists talks about the various technologies employed to achieve the seamless interaction of live and pre-produced material.

##### Technology Training

Company and individual options for training to international standards. Jon Sellar from Australia's chapter of ICIA (Infocomm) will talk about the training options for installation and operation of presentation systems. John Grimshaw explains the latest draft of the national qualifications for technicians currently being put together by Create Australia.

##### Industrial Vision Stories

We detail how large corporates are utilising

vision technology, who is integrating it, and just what 'off the shelf' equipment can do.

##### Whiz Bang Boxes

There's a lot of new and exciting boxes out there, and we have found them. This is a demo and detail session where we show a variety of cool devices, and you say, 'Hey - I can use that!'

##### Business Report

Connections Magazine report on issues affecting technology businesses across Australia. The magazine has just conducted a wide ranging survey, and the results are shared here.

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### VENUES:

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For countless years, through effective advertising, industry peer-pressure and great sales people, industry re-sellers are made to feel obliged to sell the same old "brand name" stuff. Are you caught up in what seems like an unbeatable price war with the bloke down the road? Ask yourself, does your business turn a sensible profit? Can you really sell pro-sound and lighting profitably? Can you offer unique products to your customers at a price that will make you AND them happy. If the answer is NO to any of these questions, then you should talk to LSW. At LSW we believe in the business merits of honesty and straight shooting. Above all, we believe in distributing products that represent fantastic price, quality and performance ratios.

- Fact 1** - Most of our products are exclusive and have a genuine lower retail price. Our recommended retail prices often represent 'street price'.
- Fact 2** - We have the widest range of products on the market... from speakers to smoke machines, turntables to mixers - if you need it, we can get it.
- Fact 3** - We don't fall prey to expensive re-labelling and neither should you. This is an unfortunate feature of the industry. At LSW, most of our products come from the factory that actually produces the product - and not just the badge (do you really want to pay big bucks for that very expensive gold plated sticker?).
- Fact 4** - Despite what you may have heard, the numbers don't lie. Many LSW products are the biggest sellers in the world.

In short, we provide some of **the best products at the best price**. In fact, if you find a cheaper deal on any one of our products, we undertake to beat it\*. You have nothing to lose - Let us explain to you how we can serve your business, and your bottom line. Below is a summary of some of the manufacturers LSW represent.

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- 
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- 
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\*Connections, Sept. 2002

\*conditions may apply.

The two broad categories are Analogue devices and DSP Systems. These have been further sorted into sub-categories:

**Analogue** - Equalisers; Processors (delays, voice etc); Compressors/Limiters; Microphone Preamps; Crossovers; and Miscellaneous Devices

**DSP** - Multi-function Control; Equalisers; Dedicated processors (delays, voice etc); Compressor/Limiters; Speaker Management; and Miscellaneous Devices

Most brands are listed, but some distributors could not meet our deadline, so you may have to do some extra research to find these brands and models. All items listed here include basic specifications and the quoted price inclusive of GST, and as always, contact the distributor for further information and spec. sheets - tell them Connections sent you for that extra special treatment!

Compiled by Daniel Grafton



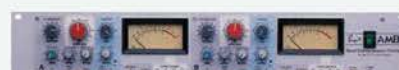
Yamaha Q2031B



Etek XCITER



MindPrint Envoye



Amek System 9098 Compressor/limiter

Some distributors supplied further product/brand information. This is what they wrote...

**Alto** is the culmination of a long quest for the extraordinary by the Italian design visionary, GP Staffa. He developed the Alto line of analogue and digital audio products (featuring sophisticated DSPs and state-of-the-art algorithms) with the performing musician and professional sound engineer in mind. Some of the Alto range includes: Digital and Analogue Compressors, Equalizers (Graphic & Parametric), Crossovers (2-4way); Power Amplifiers: Conventional & DSP Enhanced Versions; Reverbs & Effects; Feedback Terminators; Headphone Amplifiers; Direct Boxes; Tube Front End Pre-amplification; Expander/Gate Processing; Mixers & Cabinets.

**ARX** is an all Australian manufacturer that has been designing and building quality products since 1983. With a large range of signal processing amplification and speaker products, ARX has an audio solution for almost any situation.

With back-lit system status and centre frequency displays, the **Audient** range of EQs offers exceptional value for money. Designed by Dave Deardon and Gareth Davies - founders of DDA - the tilt control function allows users to rapidly alter overall system response to compensate for audience or humidity.

## Analogue Equalisers (continued)

**Peak PEQ-215** Stereo 15-Band graphic EQ; 2RU; In/Out: 2 Mono XLR/Jack Inputs & 2 Mono XLR/Jack outputs, Signal Filter: Selectable 6 / 12 dB Faders, Sweepable HPF, External Control: N/A, Other: LED Status Indicators \$349

**Peak PEQ-215FL** Stereo 15-Band graphic EQ; 1RU; I/O: 2 Mono XLR/Jack Inputs & 2 Mono XLR/Jack outputs, Signal Filter: Selectable 6 / 12 dB Faders, Sweepable HPF, External Control: N/A, Other: Frequency Locating LED'S \$429

**Peak PEQ-231** Stereo 31-Band graphic EQ; 2RU; In/Out: 2 Mono XLR/Jack Inputs & 2 Mono XLR/Jack outputs, Signal Filter: Selectable 6 / 12 dB Faders, Sweepable HPF, External Control: N/A, Other: LED Status Indicators \$429

**Phonic MQ 3300** 31-band 1/3 octave EQ; 1RU; In/Out: 2 I/Os, Signal Filter: 20-20KHz ISO \$375

**Phonic MQ 3400** Dual 15 band, 2/3 octave EQ; 1RU; In/Out: 2 I/Os, Signal Filter: 25-16KHz ISO \$375

**Rane ME15B** Dual Ch. 2/3 octave micro EQ; 1RU; In/Out: Bal. XLR & 1/4" TRS, Signal Filter: Constant Q, 20mm faders, input level controls, Other: Overload indicators; By-pass switches \$1,149

**Rolls ROL REQ232** Dual 31EQ; 1RU; I/O: 1/4" + XLR and RCA I/O, Signal Filter: Hi/Low pass filtering \$1,499

**Symetrix 531** Graphic equalizer; 2RU; In/Out: Single channel, Signal Filter: High cut & low cut filters, Other: Sweep. cut-off freq.; sub/ultrasonic control range \$1,695

**Symetrix 532** Graphic equalizer; 2RU; In/Out: Dual channel; Direct coupled I/Os, Signal Filter: 31 filter b&s per channel ISO 1/3rd-octave centres, Other: Internal power supply w/ detachable cord \$2,195

**Symetrix 533** Graphic equalizer; 3RU; In/Out: Dual Channel; Direct coupled I/Os, Signal Filter: 31 filter b&s per channel ISO 1/3rd-octave centres, Other: Internal power supply w/ detachable cord \$2,595

**Symetrix 551** 5-band parametric EQ; 1RU; In/Out: Signal Filter: 5 overlapping EQ b&s; High cut & low cut filters, Other: Use each band anywhere in the audio spectrum \$1,395

**TC Electronic 1128** 28-band EQ/Spectrum analyser Programmable ; 1RU; In/Out: Bal. XLR I/O, MIDI In/Out/Thru, Signal Filter: EQ w/- 100 presets; Feedback "search & destroy", External Control: RS485, MIDI, 6032 remote control system, Other: Internal 28-band spectrum analyser \$6,150

**Tube-Tech EQ-1A** (\*uses tubes), Single-Ch, all-tube full range EQ; 2RU; In/Out: Bal. XLR I/Os, Signal Filter: 3 x Main EQ bands; Lo & Hi Cut; Lo & Hi Shelv, Other: Separate I/O switch for all 7 EQ sections \$7,190

**XTA GQ600** 1/3 octave dual ch EQ; 3RU; In/Out: Electronically balanced output with trans option, Signal Filter: Constant Q \$3,995

**Yamaha GQ1031C** 31-Band graphic EQ; 1RU; In/Out: Balanced XLR/TRS I/Os, Signal Filter: Switchable HPF & boost /cut range (6 or 12db), Other: Sturdy metal housing \$595

**Yamaha Q2031B** Dual 31-Band graphic EQ; 2RU; In/Out: Stereo balanced XLR/TRS I/Os, Signal Filter: Switchable HPF & boost /cut range (6 or 12db), Other: Sturdy metal housing \$1,195

## Analogue Processors (delays, voice etc)

**Aphex AX 204** Aural exciter; 1RU; In/Out: 2Ch, Signal Filter: Optical big bottom circuit, Other: Quieter, flexible; Greater clarity, presence & detail \$853

**BBE 362** Sonic maximize/Phase correction; 1RU; In/Out: 1.4" I/Os, Signal Filter: +16 dBu/sonic maximizer, External Control: Ganged stereo Lo contour control, Other: Bypass switch \$399

**BBE 482** Sonic maximize/Phase correction; 1RU; In/Out: 1/4" & RCA I/O, Signal Filter: +18 dBu headroom/sonic maximizer, External Control: True dual mono operation, Other: Hardwire bypass switch \$599

**BBE 882** Sonic maximize/Phase correction; 1RU; In/Out: +4dBu Bal. XLR I/Os, Signal Filter: +23 dBu headroom/sonic maximizer, External Control: True dual mono operation, Other: Hardwire bypass switch \$899

**BBE 362SW** Sonic max/Phase correction w/sub woofer control; 1RU; In/Out: 1/4" & RCA I/O, Signal Filter: -16 dBu/sonic maximizer, External Control: Independent sub woofer control, Other: Bypass switch \$599

**Behringer EX3200** Enhancement; 1RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: Enhancer/exciter/surround processor, Other: Switchable noise reduction; Solo switch \$299

**Drawmer MX-50** Dual vocal De-esser; 1RU; In/Out: Bal. analogue I/O (XLR & 1/4"), Signal Filter: Frequency control operates from 800Hz to 8KHz, Other: Full & split band de-essing \$1,660

**Etek XCITER** Aural Enhancer; 1RU; In/Out: Stereo XLR Input / Outputs, Signal Filter: Auto Low Frequency Enhancer, External Control: N/A \$399

**Jedidiah JED JFS142A** FB Suppressor; 1RU; In/Out: Bal XLR I/O, Signal Filter: 4-B & Notch filter, Other: Rotary Impedance Selector \$499

**Jedidiah JED JNC 111** Noise Control; 1RU; I/O: Bal XLR, Signal Filter: Auto volume control, Other: LED metering \$799

**MindPrint Envoye** (\*uses tubes), Channel strip; 1RU; In/Out: 1 Ch, Signal Filter: Mic pre-; EQ; Tube compressor, External Control: 24/96 SP/DIF (Coax, Optical formats) option board, Other: "A Class" mic pre-'s \$1,145

**Peavey AA IDL1000** Delay; 1RU; I/O: 2 In, 3 Out, up to 1.3secs of delay, Other: Integral security panel \$1,789

**Peavey AA SES212** Sonic enhancer; 1RU; In/Out: Stereo low frequency & stereo image enhancer, Other: Improves clarity and definition \$985

**PreSonus VXP** Single Ch. voice processor; 1RU; In/Out: XLR & 1/4" In, XLR & 1/4" out, Signal Filter: Mic pre-; Comp/lim, expander, de-esser, para EQ, External Control: Optional 24-bit/96k digital output card, Other: 4-band semi-parametric EQ \$2,795

**Rolls ROL RD320** Room Delay; 1RU; In/Out: Hardwire Terminals, Signal Filter: Time alignment \$1,099

**Rolls ROL RP262** Exciter; 1RU; In/Out: 1/4" + XLR and RCA I/O, Signal Filter: Presence, low end definition, Other: LED Metering \$699

## Analogue Compressors/Limiters

**Alto CLE 4.0** 4 Ch. compressor/limiter w/ peak limiter; 1RU; I/O: Servo-balanced I/Os; 1/4" & XLR, Signal Filter: H-pass keeps LF signal from compressor function, Other: IKA feature combines hard & soft knee charact. \$349

**Amek System 9098** Compressor/limiter; 2RU; In/Out: 2 Mic/Line In; 2 Mic/Line out; sidechain send & return, Other: Designed by Mr Rupert Neve \$7,495



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# AUDIO SIGNAL PROCESSING and CONTROL



Cloud CX 335



DBx DBx-160SL



Klark Teknik DN 504



MindPrint T-Comp



Pure Path CIB - Channel In A Box



Ameq System 9098 Dual Mic pre-amp



Yamaha GC2020C



The **Avalon Design** range is considered an industry benchmark for high performance analogue outboard. Avalon products utilize 100% discrete, high-bias pure Class A audio amplifiers, and are incorporated into their minimal signal path designs. These include sealed silver relays, balanced DC-coupled high-current "outside-world" drivers, fully discrete linear DC regulators, low noise toroidal power transformers and selected high quality active and passive components. This powerful design combination gives increased musical headroom and greater dynamic transient capability for truly transparent audio paths.

In order to address problems inherent in basic loudspeaker design, **BBE Sound Inc.** have developed a circuit that adjusts the phase relationship of the low, mid and high frequencies, and progressively adds longer delay times to lower frequencies. This creates a 'mirror curve' to the time delay curve in the speaker, thus neutralizing its

## Analogue Compressors/Limiters (continued)

**Aphex AX 108** (EasyRider), Compressor; 1RU; In/Out: 2Ch, Signal Filter: Will not pump even with 15dB of compression \$584

**Aphex AX 720** Limiter; 1RU; In/Out: 2Ch, Multi-band, Signal Filter: Auto Limit: Allows high output w/out distortion, Other: Transparent brick wall limiting. \$3,762

**ARX Quadcomp II** 4 Ch. compressor limiter; 1 RU; In/Out: Bal. I/O on all 4 units, Signal Filter: Hardwire bypass on each; stereo linkable, External Control: N/A, Other: Independent units; Sidechain linkable \$995

**Behringer MDX2200** Compressor/Limiter; 1RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: Compressor/limiter/expander/gate/peak-limiter, Other: IGC Peak limiter \$299

**Behringer T1952** (\*uses tubes), Compressor/Limiter; 2RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: Tube compressor/limit/expander/gate/peak-limiter, Other: UTC (Ultratube circuitry) \$599

**BSS DPR-422** (Opal Series), Dual compressor/De-esser; 1RU; In/Out: Stereo I/O; XLR, Signal Filter: Stereo variable ratio compressor plus de-esser, External Control: N/A, Other: Auto mode; Comprehensive LED metering \$2,245

**Cloud CX 335** Compressor/limiter; 1RU; In/Out: 2 stereo I/Os, Signal Filter: Peak limiting & hard or soft knee compression, Other: Intelligent "split band" compression \$1,450

**DBx DBx-1074** (10 Series), Compressor; 1RU; In/Out: 4 I/O XLR, 4 1/4" Sidechains, Signal Filter: 4 Chan. Ind quad gate/filtering/thres-release, Other: Stereo coupling mode \$1,995

**DBx DBx-160SL** (Blue Series), Compressor/limiter; 2RU; In/Out: 2 I/O, 2 Side chains, Signal Filter: Compressor - 40/+30 dBu; Limiter +4/+30dBu, Other: Analogue + digital output option \$7,895

**DOD / DIGITECH SR-866** Dual Channel Stereo Gated Compressor/ Limiter; 1RU; In/Out: 1/4 Inch & RCA input / output, Signal Filter: Gate / Compressor / Attack & Release controls, External Control: N/A, Other: Input & Output Gain Controls \$599

**Drawmer MX-30** Dual gated compressor/limiter; 1RU; In/Out: Bal. analogue I/O (XLR & 1/4"), Signal Filter: Variable thresh.gate; 'Programme Adaptive' circuitry, Other: Low cost prof. quality dynamics processor \$1,290

**Drawmer TS2 - Tube Station** (\*uses tubes), 2 Channel compressor; 1RU; In/Out: Bal. analogue I/O; SPDIF/ AES/ EBU, Signal Filter: Stereo Tube soft-knee compressor; 24-bit resolution, Other: Individual parameter controls for each channel \$1,895

**Etek DYNAMAGIC** Stereo Compressor; 1RU; In/Out: Stereo XLR Input / Outputs, Signal Filter: Low Pass Filter, External Control: N/A, Other: Able to compress bandwidths via crossover \$499

**Inter-M CN-9102** Limiter/Noise gate; 1RU; In/Out: 2Ch, threshold, ratio, level control, Signal Filter: Independent gate w/ threshold, rate control, External Control: In/Out display Switch \$668

**Klark Teknik DN 500** Dynamics - compressor/limiter; 1RU; In/Out: Dual Ch. on XLR I/O, Signal Filter: Compressor/limiter/expander, External Control: Sidechain connections, Other: Peak stop limiter \$4,210

**Klark Teknik DN 504** Dynamics - compressor/limiter; 1RU; In/Out: Quad Ch. on XLR I/O, Signal Filter: Compressor/limiter \$5,192

**LA Audio BCL2** Compressor/limiter; 1RU; In/Out: 2 Ch. w/ stereo link, Signal Filter: Variable thresh, gain, attack & release & comp, Other: I/O & compressed signal level LED bargraphs; De-es \$2,295

**Lem LEM CLX2** Comp/Limiter; 1RU; In/Out: Bal. Jacks I/O, Signal Filter: Comp/limit/exp&/gate/enhance, Other: LED metering on each ch \$449

**MindPrint DTC** (\*uses tubes), Pre-, EQ, compressor; 3RU; In/Out: 2 CH, Signal Filter: Mic pre-; 4-band parametric EQ; Tube compressor, External Control: 24/96 AES/EBU option board, Other: "World Class" Haufe transformers; Parallel EQ. \$4,495

**MindPrint T-Comp** (\*uses tubes), Tube compressor; 1RU; In/Out: 1 Ch, Signal Filter: Tube compressor, External Control: 24/96 SP/DIF (Coax, Optical formats) option board, Other: Threshold, ratio, attack, release; ST link \$1,399

**Phonic MICRO V** Stereo compressor/limiter. ; 1/3 rack; I/O: x2 side chain Input, Signal Filter: Threshold, compression \$275

**Phonic PCL 3200** Dual compressor/limiter/gate & filter ; ; In/Out: 2 I/Os, Signal Filter: Select. hard/soft knee compression, expander/gate, External Control: Stereo link switch, Other: Full I/O & gain reduction metering \$299

**PreSonus ACP88** 8 Ch. compressor/limiter/gate; 2RU; In/Out: Bal./UnBal. I/O, Signal Filter: Eight full featured compressor/limiters/gates, Other: Comprehensive linking via unique power summing bus \$3,295

**Pure Path CIB - Channel In A Box** Compressor/limiter ; 1RU; In/Out: 1 Mic & Line In, 1 Mic & Line Out, Signal Filter: 4-band EQ; Parametric mid sections & HPF & LPF, External Control: 2 x ext. faders can be connected, Other: Designed by Mr Rupert Neve \$6,795

**Rane DC22** Stereo compressor ; 1RU; In/Out: Bal. XLR & 1/4" TRS, Signal Filter: 2 independent gates & compressors, Other: Gate acts as downward expander \$1,059

**Rane DC24** Dual Comp/limiter/expander; 1RU; In/Out: Bal. XLR & 1/4" TRS w/+4dBu/-10dBV switches, Signal Filter: Operate as 2/2 dual/stereo comp, 1/2 crossover, Other: Switchable 24dB/oct LinkwitzRiley active crossover \$1,899

**Samson Audio S.com** Stereo compressor/Limiter; 1UR; In/Out: I/O, Signal Filter: Expander/gate/comp/limiter & enhancer on ea ch, External Control: Threshold/ratio/attack/release, Other: Cool blue exterior finish \$349

**Samson Audio S.com plus** Stereo compressor/Limiter; 1UR; In/Out: I/O, Signal Filter: Expander/gate/comp/limiter & enhancer on ea ch, External Control: Threshold/ratio/attack/release, Other: Cool blue exterior finish \$449

**Samson Audio S.com4** 4 Ch. Compressor/Gate; 1UR; In/Out: I/O, Signal Filter: Expander/gate/comp/limiter on each ch, External Control: Threshold/ratio/& output levels, Other: Cool blue exterior finish \$479

**TL Audio 5021 - Ivory 2** (\*uses tubes), Dual Ch. valve compressor; 2RU; In/Out: Bal. line I/O XLR, Inst. In, Signal Filter: Valve compressor/Gate for each ch, External Control: N/A, Other: Optional digital out \$1,899

**TL Audio FAT1 - Fatman** (\*uses tubes), Stereo valve compressor; 3RU 1/2 width; I/O: Bal. line I/O jack, Inst. In, Signal Filter: Stereo valve compressor w/ 15 pre-sets, External Control: N/A, Other: Additional manual mode \$899

**Tube-Tech CL-2A** (\*uses tubes), All-tube, dual-Ch. compressor; 2RU; In/Out: Bal. XLR I/Os, Signal Filter: Optical gain reduction; Variable attack & release, Other: Channels linkable for stereo; VU Metering \$6,250

**Tube-Tech SMC-2B** (\*uses tubes), Stereo multi-band, all-tube compressor; 3RU; In/Out: Bal. XLR I/Os, Signal Filter: 3 x Compressor bands per ch w/ variable X'overs, Other: Master output gain & balance controls \$7,190

**Yamaha GC2020C** Dual Compressor/Limiter/Expander + gate; 1RU; In/Out: Balanced XLR/TRS I/Os + sidechain I/O, Signal Filter: Stereo or dual mono operation, Other: Sturdy metal housing \$845

### Analogue Microphone Preamps

**Amek System 9098** Mic amp; 1RU; I/O: 2 DI In, 2 Out, Sig.Filter: HPF attenuates signals below 120Hz@18dB/Octave, Other: Designed by Mr Rupert Neve \$4,350

**Aphex AX 207** (\*uses tubes), Tube mic pre; 1RU; I/O: 2Ch, Signal Filter: Up 20dB extra head room & 129dB EIN, Other: MicLim makes the 207 crash-proof \$1,250

**ART ART TPS** (\*uses tubes), Tube Mic pre-; 1RU; In/Out: Bal XLR + jacks I/O, Signal Filter: Variable Voicing/Limiting, Other: Output protection limiting \$699

**ART ART TUBEMP V3** (\*uses tubes), Tube Mic pre-; 1/2 Rack; In/Out: Jacks I/O, Signal Filter: Variable Voicing/ Limiting, Other: Output protection limiting \$449

**ART ARTPROCHANNEL** (\*uses tubes), Tube pre-/Comp/EQ; 2RU; In/Out: Bal XLR + jacks I/O, Signal Filter: Tube pre-; Compressor; EQ, Other: Insert points; Selectable VU \$2,299

**ARX MSX32T** 32 Ch. Active mic splitter; 2 RU; In/Out: 8 In 32 out mic line splitter, Signal Filter: 8ch. 4 way split; ultra low noise, External Control: Silent switch phantom power, headphone, Other: PFL monitoring; Electronically balanced I/O \$3,825

**Avalon Design AD2022** 2 Ch. mic-preamp; ; In/Out: Mic/Inst. In, Other: Discrete class A pre-amp \$5,897

**Biamp Systems SPM412e** Stereo Preamp/mixer; 1RU; In/Out: 4 stereo In's, 1 mic In. & 2 independent out's, Signal Filter: Page over muting; threshold level, External Control: Front panel controllable, optional wall plate, Other: Internal jumpers to customize signal paths \$1,799

**DBx DBx-376** (Silver Series), Microphone pre-amp; 1RU; Inputs: Mic/line/inst; Outputs: Analogue & digital, Signal Filter: 3-band EQ +/- 15dB, compressor, de-esser, Other: A/D conversion (DBx Type IV) \$1,795

**Drawmer TS1 - Tube Station** (\*uses tubes), Pre-amp/Compressor; 1RU; I/O: Bal. analogue I/O; SPDIF/ AES/EBU, Signal Filter: Stereo Tube soft-knee compressor; 24-bit resolution, Other: Assignable HF contour; 60dB of gain \$1,895

**PreSonus DigiMAX** Mic pre- w/ limiter; 1RU; I/O: 8 XLR, 2x 1/4", ins. 8 TRS, light pipe, SPDIF out, Signal Filter: Mic preamp, phantom, limiter, pad, External Control: BNC word clock I/O for sync, Other: I/Os all work simultaneously! \$4,795

**PreSonus DigiTUBE** (\*uses tubes), Single Ch. tube mic pre-amp w/ SPDIF out; Half Rack; In/Out: XLR & 1/4" combo In, XLR & 1.4" & SPDIF out, Signal Filter: 3-band EQ; TRS insert point \$895

**Pure Path DMCL** Dual Mic-amp/Compressor/limiter; 1RU; I/O: 2 Mic/line In; 2 Out; Sidechain send & ret, Signal Filter: High & low pass filters, Other: Optional A/D converter; Designed by Mr Rupert Neve \$6,795

**TL Audio 5001 - Ivory 2** (\*uses tubes), 4 Ch. valve pre-amp; 2RU; In/Out: Bal. line I/O XLR, Inst. In, Signal Filter: Variable I/O gain control, External Control: N/A, Other: Optional digital out \$1,899

**TL Audio FAT2 - Fatman** (\*uses tubes), Mono valve front end; 3RU 1/2 width; In/Out: Bal. line I/O jack, Inst. In, Signal Filter: Mono valve front end w/ 15 pre-sets, External Control: N/A, Other: Additional manual mode \$1,099

### Analogue Crossovers

**Ashly XR-1001** Stereo 2-way/mono 3-way crossover; 1RU; In/Out: XLR & TRS, Signal Filter: 24dB/oct Butterworth/Linkwitz-Riley style control, Other: 5 year warranty \$1,349

**Ashly XR-2001** Stereo 3-way/mono 4-way crossover; 1RU; In/Out: XLR & TRS, Signal Filter: 24dB/oct Butterworth/Linkwitz-Riley style control, Other: 5 year warranty \$1,999

**DOD / DIGITECH SR-834** Active Crossover; 1RU; In/Out: Stereo 3 way / Mono 4 way, Signal Filter: 24 dB per octave selectable crossover points, External

# PEAK Audio

HIGH PERFORMANCE SYSTEMS

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### TOURING SERIES

The Peak Touring Series Amplifiers have been designed with the rigours of the road in mind. These models are Light Weight, Powerful, Reliable and cost effective Switch Mode Power Amplifiers.

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**UL-2000**  
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RRP \$2395.00

**XL-3600**  
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**USA-1200**  
600w + 600w into  
4 ohm- 3RU  
RRP \$1395.00

**USA-1800**  
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### MUSICIAN SERIES

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400w + 400w into  
4 ohm- 2RU  
RRP \$1099.00

### STUDIO SERIES

The Studio Series was developed with crystal clarity reproduction in mind for the hard working studio environment. Convection cooling also makes it suitable for live performance applications.

**ST-3** RRP \$499.00  
125w + 125w  
into 4 ohm- 1RU

**ST-5** RRP \$699.00  
250w + 250w  
into 4 ohm- 2RU

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# AUDIO SIGNAL PROCESSING and CONTROL



Pure Path DMCL



Biamp Systems ANC-22



Biamp Systems PMX-84

Control: N/A, Other: XLR Input & Output \$799

**Jedia JED JDN132A** Crossover; 1RU; In/Out: 2 In 6 Out, Signal Filter: 2 or 3-way stereo \$699

**Lem LEM X0203** 3/4way Crossover; 1RU; In/Out: Bal. XLR I/O, Signal Filter: 3-way stereo/ 4-way mono, Other: Mute & Clip LED on each ch \$529

**Rane SAC22** Stereo 2-way crossover; 1RU; In/Out: Bal. XLR In/out, Signal Filter: 31 position freq; Selector w/ separate mono sub, Other: 24dB/oct LinkwitzRiley filters ensure in-phase outs \$946

**Samson Audio S.3way** Stereo/Mono crossover; ; In/Out: I/O, Signal Filter: 2-way or 3-way stereo crossover, External Control: Low/mid/high freq outputs + delay section, Other: Cool blue exterior finish \$549

## Analogue Miscellaneous Signal Processing and Control

**Ashly VCM-88** 8 Ch. VCA for remote mixer control w/ limiting ; 1RU; In/Out: 8 In/8 out TRS, Signal Filter: Limiter on each out, External Control: Wall or desktop remote units, Other: 5 year warranty \$2,549

**Avalon Design U5** Instrument DI; Half Rack; In/Out: Inst./speaker In line/Mic out, Signal Filter: 6 position tone shaping, Other: Class A DI \$1,455

**Avalon Design VT-737SP** Channel unit; 2RU; In/Out: Mic/line/inst, Signal Filter: 4-band parametric, Other: Optical compressor \$4,580

**Avalon Design VT-747 SP** Stereo mastering unit; 2RU; In/Out: Stereo line I/O, Signal Filter: 6-band graphic, Other: Optical compressor with sidechain \$4,958

**Biamp Systems ANC-22** Ambient noise compensator; 1RU; I/O: 2 In. & 2 out, Signal Filter: Sample rate (5 min); Gain Ratio, External Control: Front panel controllable, Other: Trim Adjustable mic sense level, 5yr warranty \$2,299

**Biamp Systems PMX-84** Programmable matrix switcher; 2RU; I/O: 8 In & 4 out, Signal Filter: X point switching & grouping, External Control: RS232,PC,Infra-,logic Ins. & wall mount panel, Other: Expandable to 8x8; 5yr w/ty \$3,306

**BSS FDS-310** Sweepable frequency dividing system; 1RU; In/Out: 2-way stereo or 3-way mono; XLR, Signal Filter: Variable frequency 24dB/oct crossover, External Control: N/A, Other: Frequency, level, polarity & mute \$1,965

**DOD / DIGITECH SR-RTA** Real Time Analyser; 1RU; In/Out: Mono XLR input, Signal Filter: 20Hz - 20KHz Spectrum Analyser, External Control: N/A, Other: 31 Band 5 LED Status Indicators \$1,099

**Etek MULTI-DI** DI; 1RU; In/Out: 16 Jack Inputs / 16 Balanced XLR Outputs, Signal Filter: N/A, External Control: N/A, Other: Output Configurable \$349

**Etek PARTNER** Headphone Amplifier; 1RU; In/Out: 2 x Stereo XLR Inputs, Signal Filter: Auto Noise -gate and internal compression, External Control: N/A, Other: Vvoltage & Short CCT Protection \$525

**Pure Path DIB - Driver In A Box 8** Channel line driver; 1RU; In/Out: 8 transformer coupled line drivers IN, Signal Filter: 8 Transformer coupled line receivers OUT, External Control: 8 x ext. faders can be connected, Other: Designed by Mr Rupert Neve \$7,895

**Pure Path DMCL-D** A/D Converter Option for DMCL; N/A; In/Out: AES/ EBU, SPDIF; Optical out at 24-bit 96khz, Signal Filter:, External Control: N/A, Other: Provides BNC Wordclock & P. Tools Superclock \$1,365

## Mac2000s for hire. grandMAs too.



Not that sort of Grandma! We mean the new grandMA lighting console from MA Lighting. grandMA features 3x touch screens, motorized faders, 2024 channels, 4 DMX outputs, built in UPS, keyboard mouse and trackball. Control includes audio input, SMPTE Timecode entry, MIDI in/out/thru and DMX in.

The Martin Mac2000 is a 1200 watt automated profile which features CMY colour mixing, indexable rotating gobos, strobe, smooth dimming, prism, frost, colour correction and much more.

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**Rolls ROL RDB104** Active DI; 1RU; In/Out: 1/4" I/O, Signal Filter: 4ch Active impedance matching, Other: Pad on each channel \$649

**TOA DX-0808** Analogue matrix unit; 2RU; In/Out: 8x8, Signal Filter: Two 8x8 bus matrices. 64 pt switching matrix, External Control: RS232C, RS485 or momentary switch contacts, Other: Up to 30 units can be linked. Password Protection. \$5,427

**Tube-Tech MEC-1A** (\*uses tubes), All-tube "recording Ch." processor; 2RU; In/Out: Bal. XLR I/Os, Signal Filter: Multi-band EQ; Optical compressor; Mic Pre-, Other: VU metering of either output or compression \$6,490

### DSP - Multi-function Control

**Alto ALPHAVERB** Stereo multi-effects w/ 256 presets; Half rack; In/Out: Stereo I/Os, Signal Filter: Hall, rooms, plates, vocal, multi-effects & more, External Control: Bypass footswitch input, Other: 256 stereo FX in a compact, affordable package \$249

**ART ART DMVPRO** (DSP), Multi-effects ; 1RU; In/Out: Bal. Jacks I/O, Signal Filter: Reverb; Delay; Modulation, External Control: MIDI Control, Other: 100 presets \$1,599

**ART ART FX1** (DSP), Multi-effects ; Half Rack; In/Out: Bal. Jacks I/O, Signal Filter: Reverb; Delay; Modulation, Other: 60 Presets \$399

**Ashly 2.24GS** 2 Ch. digital EQ, dynamics, delay & HP/LP filters; I/O: 2 Bal. XLR & TRS I/Os, Signal Filter: 2ch of EQ, prog. comp/limiter, delay + HPF/LPF, External Control: RS232, MIDI or Ashly software, Other: 5 year warranty \$3,399

**Ashly 4.24C** 4in 8out digital crossover/system processor; 1RU; In/Out: 4 Bal. XLR Ins, 8 Bal. XLR outs, Signal Filter: Para/shelving EQ; Delay; HPF/LPF; Phase & limiter, External Control: RS232, MIDI, SIA-SMAART or Ashly software, Other: 5 year warranty \$7,299

**Ashly 4.24G** 4 Ch. digital EQ, dynamics, delay & HP/LP filters; 4RU; In/Out: 4 Bal. XLR & TRS I/Os, Signal Filter: 4ch of EQ, prog. comp/limiter, delay + HPF/LPF, External Control: RS232, MIDI or Ashly software, Other: 5 year warranty \$6,999

**Behringer DSP2024P** Multi-effects ; 1RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: Digital/multi-engine/2-band EQ/up to 7 parameters, External Control: Midi I/O - Windows Editor, Other: 71 algorithms; 4 filters; EQ \$399

**Biamp Systems Audia** (Digital Audio Platform), Digital Sound Processor; 2RU; In/Out: 8x8, 4x12, 12x4 - all with unlimited expansion, Signal Filter: Mixers, EQ, Dyn, Filters, Xovers, Delay, Routers, External Control: TCP, IP, PC control, RS232, AMX, Crestron & CAN Bus, Other: Decentralized op, Cobranet avail; Networkable \$11,923

**Biamp Systems MSP-22E** ( Multi Sound Processor), Digital Sound Processor; 1RU; In/Out: 2 In. & 2 out. Signal Filter: Mixer, Para EQ, HP, LP, Comp/lim, Delay, Xover, External Control: RS232, PC control, AMX or Crestron, Other: No manual controls, Expandable to 4x4 \$2,799



Pure Path DIB - Driver In A Box

distorting effect. Other BBE models include the 362NR (with Noise Reduction control), and the ARS - an Audio Restoration System designed for home theatre systems. With BBE, music has great "live presence": Highs are clearer, naturally brilliant and more finely detailed, while lows are tight, well defined and harmonically rich.

When it comes to signal processing **Behringer** has been designing and manufacturing some of the profession's most respected compressors, limiters and noise gates for over a decade. Several products feature large backlit analogue VU meters, hand-selected 12AX7 tubes plus first-class A/D and D/A converters from Crystal and AKM, MIDI functionality and free Windows editing software.

**DBx's** DriveRack and Digital series all feature the patented Type IV A/D Conversion system to couple the warmth of analogue with the clarity and flexibility of the digital domain.

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Professional 8-in-1 Equipment Cart

Transforms into any of 8 configurations in 2 seconds!

4 MODELS AVAILABLE

**\$195.00 (rrp)**



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**CART-R8:** Frame telescopic from 86cm to 132cm in length with 81cm (front & rear) foldable sides. Load capacity: 226.7kg / 822.9 cubic cm.

**\$345.00 (rrp)**



**CART-R10:** Frame telescopic from 86cm to 132cm in length with 81cm (front & rear) foldable sides. Load capacity: 226.7kg / 975 cubic cm.

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# AUDIO SIGNAL PROCESSING and CONTROL



BSS SW9088 (Soundweb)



Crown IQ-USM810



DOD / DIGITECH QUAD-4



DOD / DIGITECH SR-D3



DOD / DIGITECH STUDIO-200



Eventide Eclipse



Eventide Orville



Fostex DE-10



Shure P4800



Symetrix Symnet 8x8

Drawmer's new Tube Station 1 (TS1) offers a wide dynamic range Class A mic/instrument pre-amp with HF contour which can be assigned either to the onboard stereo tube compressor or alternatively to an external destination via its own dedicated output. Similarly, the compressor can be accessed independently via its own inputs for warming and fattening stereo mixes. The TS1 offers digital outputs on SPDIF or AES/EBU at up to 24 bit resolution and 96K sample rate. Simultaneous analogue outputs are available on balanced XLR. The optional DC1 Digital Module includes 24 bit resolution, 44.1K, 48K, 88.2Km 96K sample rates, SPDIF or AES/EBU outputs and Word clock with auto high sample rate sensing.

With no less than 90 algorithms to utilise, the Eventide Eclipse favourably compares with every other effects processor in its class - and with those costing significantly more. Its dual engine architecture is configurable in series, parallel, stereo or dual mono modes to ensure complete flexibility. The Eclipse is armed with a library of 217 presets including the company's popular reverb plus delay, pitch-shifting, chorus and dynamics patches, and recalling custom settings is easy, as user storage is available on Flash memory cards. The Eclipse is destined to become a classic: a high

## DSP - Multi-function Control (continued)

**BSS PS8810CN** (ProSys), Digital signal processor; 2RU; In/Out: 8 x In, 10 x Out; 1 x CobraNet port, Signal Filter: EQ, dynamics, routing, delay, External Control: RS232, IR, Contact closure, IQ, Other: 32 user memories; In-built mic preamps \$16,645

**BSS SW9088** (Soundweb), Digital signal processor; 1RU; In/Out: 8 I/O; 1 x network port, Signal Filter: Fully user config. via Soundweb software, External Control: RS232, contact closure, 9010 remote, Other: Mic; Line; Digital I/O options; Expandable from \$11,595

**Crown IQ-USM810** Processor/mixer/router; 2RU; In/Out: 8 x Mic/Line In, 10 x line Out, Signal Filter: Gate, EQ, comp, mixer, router, delay, limiter, External Control: RS232, Contact closure, Pots, IQWin, Other: 32 user memories, internal clock triggered events \$10,745

**DBx DBx-480** (DriveRack), Equalizer + Speaker management; 2RU; In/Out: 4 In/8 Out routing, Signal Filter: 31-band EQ, 9-band para EQ, 27 Xover configs, External Control: 480R remote control controller, Other: Comp/limit; 27 Xovers; Speaker delay; A/D conv \$7,995

**DBx DriveRack PA** Equalizer + speaker management; 1RU; In/Out: 2 In/6 Out, Signal Filter: 12 filt/dual 28-band EQ/Classic compressor, Other: 120A sub-harm synth/10ms delay per ch \$1,795

**DOD / DIGITECH QUAD-4** (DIGITECH), MULTI FX PROCESSOR; 2RU; In/Out: 2 Stereo (4 x Mono) Inputs & Outputs, Signal Filter: Chorus,Reverb,Delay,Auto Panning, External Control: Footswitchable & MIDI, Other: 2 x Dual Mono Effects Engines \$1,299

**DOD / DIGITECH SR-D3** (DOD), MULTI FX PROCESSOR; 1RU; I/O: L & R Input & Outputs, Signal Filter: Chorus, Reverb, Rotary Speaker, Pitch Shifting etc, External Control: Footswitchable, Other: Dual Mono Effects Engines \$429

**DOD / DIGITECH STUDIO-200** (DIGITECH), MULTI FX PROCESSOR; 1RU; In/Out: Stereo Input & Outputs, Signal Filter: Chorus,Reverb,Rotary Speaker,Pitch Shifting etc, External Control: Footswitchable & MIDI, Other: Dual Mono Effects Engines \$799

**Eventide Eclipse** (Audio processor), Stereo effects processor; 1RU; In/Out: 1/4" XLR AES S/PDIF ADAT BNC 9-pIn serial port, Signal Filter: Dual engine effect processor w/ dynamic patches, External Control: RS232, MIDI - 7 pin version, Other: Positive action controls; Sharp, bright display \$5,838

**Eventide Orville** (Audio processor), Digital processor; 2RU; In/Out: 4 XLR I/Os 4 AES/EBU or 2 AES / 2 SPDIF Word Clock, Signal Filter: Dual engine effect processor w/ dynamic patches, External Control: RS232, MIDI, 2 relay closures, PCMCIA Interface, Other: Expand I/O routing, recording/sampling \$14,572

**Fostex DE-10** 24-bit Dual multi FX processor; 1RU; In/Out: 3 In, 4 out, Signal Filter: Fully independent dual multi FX processor, External Control: Footswitch, Other: Awesome AMP and MIC simulation \$299

**Klark Teknik DN 7454** Delay, EQ; 1RU; In/Out: 2 In, 4 Out, Signal Filter: EQ and Delay on both I/p and o/p, External Control: RS232 plus MIDI, Other: Compressor/limiter \$5,988

**LA Audio DigEQ** Digital EQ/Dynamics processor; ; In/Out: 2 I/Os; Digital In/Out, Signal Filter: 31-band EQ; 3-band para; Hi-Lo filters; shelv EQ, External Control: MIDI, RS232 & RS422 control, Other: Comp /Limiter & expander/gate; Large backlit LCD \$6,495

**Lem FX22** Multi-effects ; Half Rack; In/Out: Bal. Jacks I/O, Signal Filter: Reverb, Delay, Modulation, Other: 121 effects - Dual Mode \$449

**Lem FX24** Multi-effects ; 1RU; In/Out: Bal. Jacks I/O + MIDI, Signal Filter: Reverb, Delay, Modulation, External Control: MIDI Control available, Other: 128 user/128 factory effects \$849

**Phonic DFX256** Digital FX ; ; In/Out: 2 I/Os, Signal Filter: 32 pattern, adjustable parameters, Other: S/PDIF, MIDI interface \$350

**Phonic MICRO VI** FX processor; 1/3 rack; In/Out: 2 I/Os, Signal Filter: 16 effect, 24-bit DSP processing, Other: Mix level control, level & clip LED \$275

**QSC Audio DSP-30** Digital signal processor; 1RU; In/Out: 2 I/Os, Signal Filter: Xover, shelf & parametric; signal & peak limiting, Other: All settings recallable for future use. \$1,595

**QSC Audio DSP-4** Digital signal processor; Bolt-On; In/Out: 2 I/Os, Signal Filter: Xover, shelf & parametric filtering; signal limiting, Other: All settings recallable for future use. \$1,495

**Ramsa WZ-DE45** Multi equaliser; 1RU; In/Out: 2 I/Os, Signal Filter: GEQ, PEQ, Notch, Gate, Comp, Delay, External Control: RS-485, Other: 24-bit AD/DA; 48kHz sampling \$4,398

**Ramsa WZ-DM35** Multi processor; 1RU; In/Out: 2 In & 4 Out, Signal Filter: GEQ, PEQ, Delay, Crossover, Comp/limiter, Gate, External Control: RS-485, Other: 6 Modes; 24 bit AD/DA; 48kHz sampling \$5,463

**Rane rpm88** (DragNet), Programmable multiprocessor; ; In/Out: 8 I/Os, Signal Filter: Matrix mixers, EQ, limiters, crossovers, External Control: 485 bus for remotes+10Base-T Ethernet cont. port \$10,440

**Shure DP11EQ** Digital dynamics processor; Half Rack; I/O: 1 x line I/O, Signal Filter: AGC, compressor, limiter, parametric EQ, delay, External Control: RS232 & Windows GUI, Other: Expandable (link), tamper proof front panel \$2,545

**Shure P4800** Digital signal processor; 1RU; In/Out: 4 x line In, 8 x line out, Signal Filter: EQ, feedback reducer, compression, Xover, delay, Other: 128 onboard scene presets \$8,295

**SM Pro Audio FX01** Multi-effects ; 1RU; In/Out: 2 I/Os; XLR, servo Bal, Signal Filter: Reverb, delay, chorus, Leslie, flanger, EQ, External Control: MIDI Controllable, Other: 48 User presets, 24 bit AD/DA's \$499

**Symetrix 322** DSP processor; 2RU; In/Out: 2 I/Os, Signal Filter: Crossover: 2-way w/ multiple filter slopes avail, External Control: Remote Control, Other: For all processing in small sound systems \$1,995

**Symetrix Symnet 8x8** DSP 8x8; 1RU; In/Out: 8 I/Os, Signal Filter: AGC/Levellers, Voice Processors, SPL Computers, Other: CAD style drag-&-drop setup; quick system config. \$10,995

**TC Electronic Finalizer 96K** Dynamics/Mastering processor; 1RU; In/Out: Bal XLR, AES/EBU, S/PDIF, TOS, MIDI, Signal Filter: Multi-band EQ/comp/expand/limit/normalise, de-ess, External Control: MIDI, Foot pedal, Other: 24-bit/96kHz converters; Sample rate conversion \$6,695

**TC Electronic M300** Multi-effects & reverb processor (stereo); 1RU; In/Out: Bal T/R/S I/O, S/PDIF (RCA Phono),

MIDI I/O, Signal Filter: 15 each Stereo reverbs & effects with 355 presets, External Control: MIDI. Foot pedal, Other: 24-bit ADA converters, \$899

**TC Electronic System 6000** Multi-Ch. signal processing platform; 2RU; In/Out: 8 or 16 AES/EBU I/O's, Up to 6 Ch. Analogue I/O's, Signal Filter: Up to 8-Channel digital FX, reverb,

dynamics & more, External Control: ICON Remote. PC LAN, MIDI, SMPTE, joystick, Other: 24-bit/96kHz; Extensive software options from \$21,750

**TOA DP-0206** Digital processing unit; 2RU; In/Out: 10 stereo In, 4 stereo outputs, Signal Filter: EQ, Delay, Matrix, Compressor/Threshold, External Control: PC RS232C, RS485 Remote control option, Other: Expandable to 6 by 10, 16 presets \$5,358

**TOA SX1000** Matrix controller; 5RU; I/O: 8 In, to 8 out, expandable to 128x128, Signal Filter: 16 digital bus switch matrix, External Control: RS232C and front panel control, Other: Self Diagnostic Out; Remote mic interface \$16,495

**XTA DP324** Dynamics/EQ/Delay processor; 1RU; In/Out: 6-band parametric each input, Signal Filter: S-dechain processing; HF & LF pass filters; gate/exp. External Control: Remote control via MIDI, RS232 or RS485 ports, Other: True digital processing utilising current algorithms \$5,295

**Yamaha DME32**, DSP Engine; 4RU; I/O: Configurable up to 32 TRS I/Os, Signal Filter: Audio FX + switcher router mixer x/over & more, External Control: USB, Serial, MIDI, GPI, Other: Supplied with configuration software \$7,495

**Yamaha SPX 990** Multi-effects ; 1RU; In/Out: True stereo XLR/TRS I/O; -10/+4 switchable, Signal Filter: Multi FX; Reverb delay mod. EQ pitch; pan dist. etc, External Control: Footswitch Trigger & MIDI, Other: Sturdy metal housing \$1,995

**DSP - Equalisers**

**Behringer DSP8024** Graphic Analyser; 2RU; In/Out: Stereo I/O, XLR + 1/4 TRS, Signal Filter: 31-band real-time analyser/low-high filters, External Control: Midi I/O - Windows Editor, Other: Auto-Q; Mic In.; Delay line; Feedback destroyer \$1,199

**Inter-M GEQ-1231D** Digital graphic; 1RU; In/Out: 1Ch 31-band, Signal Filter: 64Hz sampling frequency; 24Bit AD converter \$790

**Inter-M GEQ-2231D** Digital graphic; 2RU; In/Out: 2Ch 31-band, Signal Filter: 64Hz sampling frequency; 24Bit AD converter \$940

**Inter-M MEQ2000** Multimode equalizer; 2RU; In/Out: 24-bit, 96kHz A/D&D/A converters \$3,800

**Klark Teknik DN 9340** EQ; 2RU; In/Out: 2 I/Os, Signal Filter: Fully programmable EQ, External Control: PC remote control via 485, Other: Delay, parametric, dynamic EQ \$10,500

**PreSonus DEQ624** 2 Ch. digital graphic EQ w/ dual dynamics processor ; 2RU; In/Out: XLR, 1/4" TRS, & barrier strip I/O, Signal Filter: 31-band EQ with Comp/limiter, Other: Snapshot storage and recall of four programs \$2,295

**Sabine GRQ3101S** Graphi Q; 1RU; In/Out: 1 mono In/2 mono out, Signal Filter: 12 FBX filters plus clip-guard, External Control: RS232 Windows operation, Other: Graphic EQ; Para EQ; Delay; Comp/limiter \$2,377

**Sabine GRQ3102** Graphi Q; 2RU; In/Out: Stereo line I/O, Signal Filter: 12 FBX filters plus clipguard per ch, External Control: RS232 Windows operation or front panel, Other: Graphic EQ; Para EQ; Delay; Comp/limiter \$4,757

**DSP - Dedicated processors (delays, voice etc)**

**Behringer DSP1124P** Feedback Destroyer; 1RU; I/O: Stereo I/O, XLR + 1/4 TRS, Signal Filter: 2 x 12 programmable parametric filters, External Control: Midi I/O - Windows Editor, Other: 2ch feedback or 2 x 12-band para EQ \$359

**DOD / DIGITECH SR-D12** (DOD), Delay / Sampler; 1 RU; In/Out: Mono Input & Output, Signal Filter: Delay / Sample, External Control: N/A, Other: 6sec /12sec/24sec segments \$799

**Eventide DSP7500** (Audio processor), Stereo ultra-harmonizer; 2RU; In/Out: 2 I/Os XLR 2 AES/EBU or SPDIF MIDI, Signal Filter: Vocal pitch correction, rev, delay, pitch shifter, External Control: 2 Foot pedals, MIDI, 2 relay closures, PCMCIA, Other: Multiband compression, expansion, mastering tools \$10,690

**Lexicon MPX 1** (MPX Series), Multiple effects processor; 1RU; In/Out: Bal. analogue I/O (XLR & 1/4 inch TRS); S/PDIF I/O, Signal Filter: Reverb, chorus, parametric EQ, Pitch Shifting, External Control: MIDI clock control, Other: 32-bit internal processing; 56 effect algorithms \$2,900

**Lexicon MPX 110** (MPX Series), Digital effects processor; 1RU; In/Out: Bal. analogue I/O (XLR & 1/4 inch TRS); S/PDIF I/O, Signal Filter: Multiple delay, modulation, & pitch effects, External Control: Dual footswitch; Full MIDI control, Other: 24-bit A/D-D/A; 240 presets \$890

**Lexicon MPX550** (MPX Series), Digital effects processor; 1RU; In/Out: Bal. analogue I/O (XLR & 1/4 inch TRS); S/PDIF I/O, Signal Filter: Reverb & dual programs/two independent FX, External Control: Dual footswitch: Full MIDI control, Other: Large, graphic front panel display; 255 presets \$1,250

**Lexicon PCM 81** Digital Effects Processor ; ; In/Out: Digital I/O; Bal. Analogue I/O - XLR & 1/4", Signal Filter: Studio level reverbs & FX; 3-D effects processing, External Control: MIDI clock control, Other: Over 21 secs. delay time; 300 Presets/50 User \$5,900

**Sabine FBX1020** Feedback exterminator; 1RU; In/Out: Mono I/O, Signal Filter: 12 FBX filters plus clipguard, Other: Switchable filter widths: 1/10 or 1/5 \$2,199

**Sabine SL820** Feedback exterminator; 1RU; I/C: Mono I/O, Signal Filter: 8 FBX filters, Other: 20-bit digital \$1,199

**Shure DFR11EQ5** Digital feedback reducer; Half Rack; In/Out: 1 x line I/O, Signal Filter: Feedback reducer; 1/3rd EQ; delay & limiter, External Control: RS232 & Windows GUI, Other: 10 user memories (3 via front panel) \$2,345

**SM Pro Audio FEX01** Feedback exterminator; 1RU; In/Out: 2 I/Os; XLR, servo Bal, Signal Filter: 24 parametric EQ filters; Auto & manual modes, External Control: MIDI Controllable, Other: 24 bit AD/DAs \$499

**Sony DRE-S777** Sampling digital reverb ; ; In/Out: Bal. XLR I/O & AES/EBU, Signal Filter: Reverb sampling rate 96 kHz; 4-band parametric EQ, External Control: Ext-Sync: Word (SDIF compatible, 75 ohms, BNC type), Other: 24-bit;



PreSonus DEQ624



DOD / DIGITECH SR-D12



Eventide DSP7500



Yamaha REV500

sample rate and pristine sonic quality makes it a highly versatile tool for tweaking and sweetening all digital and analogue material.

The new **Fostex** DE-10 dual digital multi-effects processor gives project studios, musicians, vocalists and guitarists' easy access to high quality, 24-bit effects at an affordable price. These include guitar and bass amp simulators, (with popular patches for everything from a small 'twin' to a huge stack), and realistic microphone simulators. With the DE-10's there is no need to have different microphones for different musical and recording styles - just select the simulation you want and go. Other features include a choice of operation modes; hi-quality build; built-in power supply and rack mounting. The DE-10 provides superior effects, easier control and better value than similar-priced processors in its class.

The **Inter-M** MEQ-2000 Multimode Equalizer is a 31-band graphic equalizer and 8-band parametric equalizer supported by 6-band notch, low-cut, and high-cut filters. A combined limiter/compressor is also included for sound finishing in 'mastering' mode, and a peak-limiter allows loudspeaker protection in 'reinforcement' mode. A long delay in every channel allows precise sound alignment for different loudspeaker or microphone positions. Finally, the unit includes a real-time spectrum analyser plus room measurement/equalizing functions for advanced sound system installations.

**Klark Teknik** announces the release of the new DN 9340 equaliser. This is a fully digital equaliser that can provide dual 30-band EQs with the ability



BSS FDS-366



XTA DP226



Bose PSC



BSS FDS-366

to emulate either a DN 27 or DN 360. Twelve fully parametric filters per band are included plus 4 configurable 8th order filters (pass, shelf etc). As well, the DN 9340 introduces two bands of threshold-dependent equalisation per channel: this is true dynamic EQ, not frequency conscious compression. The DN 9340 offers a variable 'Q' response, from constant, reciprocal or proportional, and can be remotely controlled from any computer based platform. It will also 'interface' with Midas Heritage and Legend mixing consoles - the filter will display when the console is solo'd.

The **Sony DRE-S777** Sampling Digital Reverb is a unique reverb processor that derives its sound not from artificially generated algorithms, but from actual impulse response samples of real acoustic spaces. Key features include: 92 user caches for quick program recall; 96 kHz sampling for higher level of sound quality; 4-band parametric EQ; and high quality A/D and D/A conversion. Accessories include: A/D Converter Board (\$1790); D/A Converter Board (\$1190); Expansion DSP Board (\$3500), and Four sampling reverb software bundles starting from \$990 ea. Call Sony to request a demo CD to hear the DRE-S777 in action, and go to [Sony.com.au](http://Sony.com.au) for further DSP solutions.

The System 6000 is the ultimate of **TC Electronic's** "Ultimate Sound Machines", and has already become the processor-of-choice for a number of the leading audio engineers. The 6000 was designed to provide a 'complete' effect & reverb solution for the burgeoning surround-sound audio market. Offering multi-channel Reverbs, Effects, Dynamics, Pitch Shift, Noise Reduction and more, the System 6000 can handle any surround format and features an open-ended architecture to adapt to any foreseeable future market trends. The widespread use of digital equipment in the recording chain has fuelled the need for high quality valve outboard - the flexibility and performance of digital and the fatness and smoothness of analogue.

Thus renowned engineers have turned to **TL Audio** products to bring something to their recordings that they just can't achieve with solid state technology - warmth. Kylie Minogue's current 'Fever' Tour, coinciding with the release of her latest single 'Love At First Sight', is being heard through a Meyer Sound line array PA system from Capital Sound, featuring **XTA** digital signal processing throughout.

92 user caches; Memory Stick & ext. options \$9,990

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**BSS FDS-334** (Minidrive), Loudspeaker management system; 1RU; In/Out: 2 In, 4 Out; XLR, Signal Filter: Assignable EQ, crossover, delay, limiter, External Control: MIDI, Other: LED meters on all I/Os; 60 programs \$3,545

**BSS FDS-366** (Ominidrive Compact Plus), Loudspeaker management system; 1RU; In/Out: 3 In, 6 Out; XLR, Signal Filter: Assignable EQ, crossover, delay, limiter, External Control: RS232, MIDI, Other: 96kHz; AES/EBU input; 112dB dynamic range \$8,495

**Celestion CEL DMS2065** (Speaker Management), Speaker Management; 1RU; In/Out: 2XLR in/ 6 XLR out, Signal Filter: FX, EQ, Comp/Limit X-over etc, External Control: RS232 control, Other: 80 factory + 19 user settings \$5,999

**Klark Teknik DN 9848** Controller; 1RU; In/Out: 4 In, 8 Out, Signal Filter: Fully programmable Crossover, External Control: PC remote control via 485, Other: Compressor/limiter \$11,403

**Klark Teknik DX 38** Controller; 1RU; In/Out: 2 In, 4 Out, Signal Filter: Fully programmable crossover, External Control: RS232; Optional wall plates, Other: Optional remote control/monitor \$3,555

**Lem DX24** SPK Processor; 1RU; In/Out: Bal. XLR I/O, Signal Filter: 2 in/4out-2way st/4way mon, External Control: MIDI Control available, Other: FX, EQ, Comp/limit, x-over etc \$999

**Lem DX26** SPK Processor; 1RU; In/Out: Bal XLR/Jack in XLR out, Signal Filter: 2in/6out 3way st-6way mon, External Control: RS232 / RS485 + Digital in, Other: FX, EQ, Comp/limit, x-over etc \$1,999

**XTA DP224** Loudspeaker management system; 1RU; In/Out: 2 In & 4; 8-band parametric each input, Signal Filter: Butterworth, Bessel or Linkwitz-Riley responses, External Control: Velocity-sensitive encoders w/ backlit LCD screen, Other: 40 memories, PC Card storage & remote control \$5,295

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**ART ART DPS** 2ch D/A Converter; 1RU; In/Out: Analogue XLR + jacks (front), Signal Filter: Dual DA converter, External Control: ADAT TOSLINK S/PDIF, Other: Output protection limiting \$899

**Biamp Systems SPM-723** (Prog Stereo Preamp/ mixer), Preamp/ Mixer; 1RU; In/Out: 7 stereo line In's, 2 mic In's, 3 stereo out's, Signal Filter: Prog ducking, priority, mid freq sweep,, External Control: RS232, PC control, AMX or Crestron, Other: Tamper proof front panel, prog logic Ins. \$3,999

**Crown IQ-PIPUSP2** Amplifier plug-in DSP card; N/A; In/Out: 2 x I/O (internal to amp), Signal Filter: Auto standby, limiting, EQ, Xover, delay, External Control: Windows GUI, Other: 10 onboard presets. \$1,835

**Crown IQ-USP2/CN** Amplifier plug-in DSP card with CobraNet input; N/A; In/Out: 1 x Cobranet In, 2 x Out (internal to amp), Signal Filter: Auto standby, limiting, EQ, Xover, delay, External Control: Windows GUI, Other: 10 onboard presets. \$3,495

**DBx DBx-TEM** (Digital Series), In-ear-monitor processor; 1RU; In/Out: I/O; XLR+1/4", Signal Filter: 4-band stereo comp/limit/, 5-band EQ, 3-band para, Other: Peakstop; Stereo adjust; PC connect; A/D conv \$4,895

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**Peavey AA Xframe 88** (MediaMatrix), Matrix and Processing and control; 1RU; In/Out: 8 In/8 out; Mic or line available, Signal Filter: EQ/AGC/Comp/limiter/router/mixer/delays/ducker, External Control: RS485; Optional wall plates, Other: Open architecture; Windows based; Expand to 24x24 \$9,999

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Prior to the transition of the musical Oliver from Sydney's Lyric Theatre at Star City to Melbourne, Connections took a backstage look at the staging and lighting behind a show that is built to tour.

by John Grimshaw



The baby-sized Irideon AR5's as footlights. Interesting effects during the show, but unfortunately the stage savvy child actors have worked out where to stand to "standout"!



Gotta love the gadgets - above is the inside of a prop "pot of stew". The little smoke machine is the silver tube in the centre, the smoke fluid is on the left and an older style camera battery on the right. An actor simply pushes an external button, and smoke is created with no pre-heat time! This little guy is not cheap, but it is now in the hire inventory of Chameleon once this tour ends.

**A**fter Oliver was re-staged in London to critical success in 1994, a touring version of the show was built in 1998. After seeing numerous performances around the UK, the whole system including lights and set were packed up and shipped to Toronto. After some years in storage, the set has now found its way to Sydney, and is about to open in Melbourne.

This touring production has been carefully built to be able to be staged in almost any venue, regardless of the facilities - just so long as there is enough stage space, some rigging points and a couple of fly lines. Walking around backstage, one of the first things you will notice is that there is almost no set outside the footprint of the stage. This is very impressive considering the amount of automation this show uses.

Chris Younger, who operates the automation desk for the show, explained that there are more than 30 automated controls, shifting scenery trucks and controlling various elements that move through the show. The show is built to be staged in venues with almost no backstage space, and to internally supply the means to control nearly all stage elements without having to rely too heavily on the venue's facilities.

This was born out of necessity for the UK tour, where the show could be going into venues with extremely limited capabilities.

The show control is by a Show Technologies Acrobat 3D desk. While this desk has been largely superseded by newer desks in the Show Technologies range, because the show was originally controlled by this desk, it was easier to resurrect the older technology than to completely re-program the show.

The control of the desk for the show requires the use of manual (paper) cue sheets, as the computer control of this older design did not include this facility. Also, the desk does not have an "All Stop" emergency button - though Chris

can stop any or all motors instantly.

The desk controls a range of winches and hydraulic drives. One interesting point on the winches is that they have been wound with a heavy duty Kevlar based rope rather than steel wire. This makes re-tensioning much easier and reduces operational noise considerably.

The lighting for the 1994 production and all subsequent versions (including this tour) was designed by David Hersey. The initial re-working for the touring version in 1998 involved the concept of keeping the show self-contained in the same way as the staging. Trusses were built especially so that during de-rigging, wheels are re-attached to allow truss segments to be moved into trucks without de-rigging the lights themselves.

The upstage truss is where the bulk of the electronics and dimming for the show is mounted. Most dimmers, power distro, automation motor controllers, and (for the UK tour only) much of the audio equipment was located here.

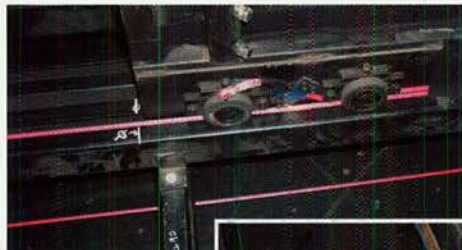
When the show came to Sydney, local audio supplier, System Sound decided not to use the pre-wired and acoustically isolated racks in this truss, preferring to use their own systems. However, the rest of the bridge remains in use, with the lighting patch being hardwired inside locked electrical cupboards.

The actual lights used for the production locally have been re-selected because some lights in the original design are not available locally and the fact that lighting technology has moved forward considerably since 1998. The Martin PAL1200's (with shutter framing abilities) in the original design have been replaced by Martin Mac2000 Performance. Also the original Amptown Washlights were replaced by the Vari-lite VL2402.

One unusual light fitting that did stay was the Irideon AR5 - a baby moving light used in this show as a controllable footlight. For those that have been to Crown Casino, apparently there are 300+ of these strewn about the place. Made by Vari-lite some years ago (they won an award for it back in 1995), they are intended to be an architectural light. The unit has a 35W arc source, CMY colour mixing, variable beam angle and focus control. Though not originally intended for DMX control, they can be used with special data converters.

Also used on the show is an array of conventional lights, some controllable light curtains, and some effects like animation discs.

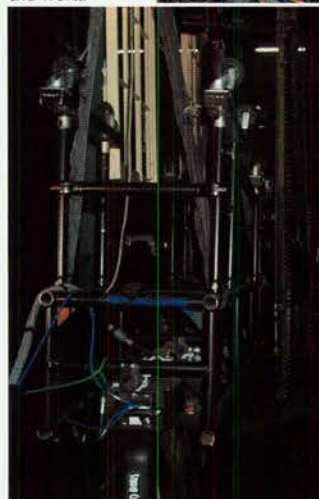
Control for the Sydney/Melbourne shows is supplied by a Strand 520i. When the show was being prepped in Sydney, the UK based Co-Lighting Designer Jenny Kagan (Pan) was able to use the disks from the original tour, which was recorded on an earlier model Strand 530, to reproduce and finesses the show. Rob Halliday - a well known UK lighting operator and designer was also imported to run and re-program the desk for the bump-in.



Winches with the kevlar based rope. No tools required to re-tension the trucks!



Patching - European style. This kind of hard-wired patching is becoming more common around the world



To...ring Truss - note the wheel sections stored on top of the actual truss. During bump-out the truss is lowered, the wheel sections are moved from the top to the bottom, then the truss is rolled straight into waiting trucks.

**About the show**

The show itself is remarkable, particularly from the point of view of a technician. The set is exquisitely designed to make seemingly impossible set changes viable in a very small venue (in Sydney they enjoyed luxurious surrounds compared to some of the locations this set has been installed). The first change into Fagan's under-street hideaway is one of those excellent theatrical moments that are worth savouring, as a bridge rises and the sewer trucks in from either side. Then there are excellent examples of "sleight of hand" set changes, where the audience can actually miss seeing some of the more complex transitions.

The approach to the show by UK Lighting Designer David Hersey is subtle and well executed. For budding Lighting Designers out there, this show is worth seeing to see how one of the world's best lighting designer's handles conventional musical theatre. Oh, and the actors were ok too.



Ed Cymerman (Head Elec) & Chris Younger (Automation)

This box (right) was built and supplied by Sitepower (+61 2 9773 5943) and is worth a mention on a number of fronts. Being a rubber based box it is double insulated, it will handle knocks and some moisture issues, AND Sitepower knew what was meant Ed asked for Socapex connectors for the 3 Phase.



**Sighting Spots**

Follow spot operators on the show have to make some very, very tight shots (imagine hitting the eyes only of one of the actors from about 5m away). To do this the spots have been fitted with a cool device that provides a see through "heads up" like display using LEDs to project sight rings onto an angled piece of glass. A little research by Connections was not able to turn up the actual model used on the show, but we did discover that there is a rather version of the device at [www.toolsforstagecraft.com](http://www.toolsforstagecraft.com). At US\$55 plus US\$20 shipping (or US\$30 shipping for express), this may be a good investment for fellow spot owners or operators. Another followspot effect in the show was achieved by a converted Strad Cantata (pictured above) - a photographic flash tube is used in place of a standard bubble.

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# Renaissance man Ignatius Jones

by Madeleine Murray

It is a good thing that Ignatius Jones is multitalented, because he needed to be this year. He Co-directed the Man from Snowy River arena spectacular that has just opened, is Director of Ceremonies for the Gay Games in November, and is directing Orpheus Descending for Opera Australia.

Every year since '97 he has directed the Sydney New Year's Eve Celebrations, and he directed the Independence Day ceremony for East Timor in May. Jones was responsible for the thrilling, thunderous horse welcome of the Opening Ceremony, Sydney 2000, for writing Eternity on the Harbour Bridge, and for the river of lightning finale of the closing ceremony - to date the largest fireworks display in the world ever, stretching 16km along the Parramatta River from the stadium to the Bridge.

Like most busy and successful people, Jones was relaxed and happy to talk.

## How do you deal with pressure?

I really look forward to that a scotch at the end of the day. I also read a lot, about work, or something completely different. I don't have time for exercise.

## What did you learn from Ric Birch?

At the end of Sydney 2000, I kind of knew how to do a ceremony. But Ric's not a teacher. His main thing is - find good people and trust them. I'm a bit more hands on than that. I like to have a very strong theme - gather a lot of good people, get them talking and see what themes emerge. That's what I've done both with the Gay Games Ceremony and the East Timor Independence Ceremony, which was a lot more difficult as it was all done in two languages I don't really speak. We had meetings in four languages, English, Portuguese, Tetum and Bahasa, confusing.

## How do you choose crew?

I go and see their work. I do tend to use people I've worked with before, but I cut the cloth to suit the garment. At the moment, I'm working with designer Mark Thompson on Orpheus. He has an amazing knowledge of art, which a lot of younger designers these days don't. He loves the pre high tech theatre I want in Orpheus.

## Who are some interesting tech people in the industry?

I've worked with Bytecraft on the Olympics, Millennium celebration, Federation and East Timor. They're great. Soundwise, Coda and Norwest have been fantastic to me in the past. Interestingly enough, Jands were just wonderful to me in Timor. For a long time I think there was a feeling that Jands had gotten too big for their boots. I was really impressed with them in Timor, and I never thought I'd find myself saying that. There was never a problem.

We were dealing with people who had never even heard or conceived of a mic, let alone seen one. The dignitaries would not come to a rehearsal. In a situation like this, where you have one chance, you rehearse the protocol people, who then brief the VIPs.

Jands were great that way and managed to cover the stage brilliantly. We also had 90-year-old guys from the district playing nose flutes, and giant jew's harps and stuff like that. And you heard it all, and they weren't standing anywhere near a mic. But the shotguns Jands used managed to pick everything up.



## What has been the most important technical breakthrough?

3D rendering of shows during preproduction. It's been cost prohibitive in the past, but I think it's money well spent. It shows the client what they are going to see. With lighting programs like WYSIWYG, you can do that. It also shows the director/choreographer where they're heading.

I developed a little Apple script when I was doing the horses for the Opening Ceremony, 2000. I told it where I wanted them to be, in what shape and how many. It would then calculate for me just where they needed to be. I gave it to the graphics person and asked her to animate it. I can tell you how long it takes for a horse to trot 100m, and we worked it all out to scale. We then animated it and we discovered that we were lacking 30 seconds of music, so the composer could add another 30 seconds before we went into the studio with a symphony orchestra. That saved us about \$80,000.

When I do a ceremony, I have every last bit of it charted. A ceremony boils down to five or six unforgettable images, and the rest is traffic management - getting people in and out of the vomitoriums!

Every stadium is different...they're not built for putting on shows.

The Holy Grail of theatre technology at the moment is to develop projection properly, so that you can integrate it with live action and so that it works with theatrical lighting.

## Do you think audiences expect more bang for their buck?

I'm not a big tech fan, although I'm right into it. I find all of that great big theatrical technology is often not as much fun as seeing the gears. Those fabulous elephants at the beginning of Lion King were ancient technology.

That was more impressive than the chandelier crashing down in Phantom, or the helicopter in Miss Saigon. The 1980's triumph-of-the-set shows weren't much chop. Lloyd Webber is going to be the Meyerbeer of his generation. No one will remember who he is in 40 years. Audiences have come to expect high tech, but if you deliver decent theatre, they will be just as thrilled.

## With show like the Olympic ceremonies setting impossibly high production standards, how do you respond?

The ceremonies didn't have very high production standards. The most difficult thing was scale. The biggest tech feat was the flying and when you think about it, there is nothing that high tech about flying. But they worked out how to do it in a stadium, and that was truly amazing. But the three things people remember most about that ceremony was the lone horseman, the little girl flying, and Cathy and the cauldron, which was high tech.

## Have you thought of an effect that no one could work out how to do at first?

Writing eternity on the Harbour Bridge, and last year we put Ayer's Rock up there and made it change colours. I think it's just a question of asking "Is this possible?" And the lighting people say, "Yeah, we just switch around circuits." Often it's about being brave enough to ask questions. I couldn't give a toss how stupid people think I am as long as I get the job done.

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### Bi-directional DMX data

It is worth understanding the basics of how this works, so that you are able to fault-find in these systems when you come across them. Before the data is sent, a reset sequence is transmitted so that receiving devices will recognize that the data that follows is the "DMX Packet". A single packet of DMX data consists of numerous elements, but basically there is a "start slot" followed by up to 512 "data slots" where the individual level for each of the 512 lighting channels is set. This reset and DMX packet is repeated endlessly.

To make bi-directional data possible, ESTA are suggesting a solution that eliminates data collisions (two devices transmitting at the same time). In the reset sequence, and alternate start code can be transmitted, followed by different data slots which can instruct remote devices to send return data. This interaction requires manufacturers to apply for specific codes to use with their equipment. Because that whole sequence is repeated in microseconds, there is not expected to be any degradation in lighting control ability.

The official title of the standard is "ESR E1.11, Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories", and is a long overdue update to the standard that was put in place in 1990.

Connections looked in detail at two earlier drafts of the new standard (Connections Feb 2000 and June 2001), and while many of the ideas have flowed through to this draft, there are some significant changes in this draft that are worth noting.

Those currently working with DMX understand that it is a "one way" protocol - i.e. the data is transmitted from the lighting desk to each sequentially connected device. It uses only pins 2 and 3 of the five pin XLR, with pin 1 used as a shield for the data signal, and pins 4 and 5 generally not used (or used simply to send another DMX line). The updated standard provides for a number of different types of DMX to be installed. These different types are called "EF1, EF2, EF3 and EF4", and they all incorporate different ways for bi-directional data to be employed. Each has a special symbol which is indicative of how data can be transmitted on the two data lines (pins 2/3 and pins 4/5 on the standard 5pin XLR).

EF1 allows for limited bi-directional data on the main DMX line (half duplex on pins 2/3), and no connection on the second line. It has been suggested that this will

be the main type of system used, as it allows for a majority of existing equipment to continue to operate without any modification.

EF2 uses the main DMX line to send data in one direction, and the second line to send return data. As a "Full Duplex DMX" option, it is intended that this type of implementation is for more intensive feedback from remote devices, which each remote device capable of transmitting data on the second line in turn.

EF3 uses the main DMX line to send data in one direction (like EF2), and the secondary line uses the new bi-directional protocol for any return information.

EF4 uses bi-directional data on both lines.

Older devices should be quite fine to use in any of these systems types so long as the unused pins 4 and 5 are looped directly between the 'in' and 'out' XLRs - you may need to get this change done to some DMX equipment in future years as these standards are adopted.

Once adopted these changes will mean that every new piece of DMX equipment and outlets in venues will need to be labelled with text like "DMX512-A (EF1)"

If adopted, one of the biggest problem that will be faced will be the use of opto-isolaters - DMX splitters. Under the current regime, it is quite simple to induce a device that copies the DMX data, and sends it out on multiple lines. In the future, you will need to look carefully at the device to see which EF type (or types) a particular device will deal with.

Other interesting points in the draft include wiring DMX using UTP (Cat 5 type) cable. You can use unshielded Cat 5 (or better) cable in installations so long as it is put inside an earthed metal conduit. You can also use a shielded version of Cat 5 outside of a conduit, but either option must use the colour code to pin connections shown on the next page.

This is the same wiring as specified in the last version of the draft. If you are contemplating using this wiring, you will need to keep in mind two areas of caution. The draft specifically states that "Wires 4 and 7 are used for various purposes in other wiring standards, including telephone ringing voltage."

It goes on to suggest that these wires can be used for limited "low voltage DC". The second warning in the draft talks about accidental connection to non-DMX512 equipment such as Ethernet protocol devices can cause damage to either system. This is why the draft also specifies that the Ethernet RJ45 connector should not be used, except in controlled (lockable) areas.

These could be the new DMX512A standards. Each piece of equipment will need to specify which "EF" standard it complies with...

EF 1 ↔

EF 2 ⇄

EF 3 ⇄

EF 4 ⇄

On the subject of connectors, the draft specifies that only the standard 5pin XLR can be used unless it is physically not possible to put that size connector on the device. If that is the case, because you also cannot use the RJ45 connector, the draft then allows you to use any other type of multi-pin connector, so long as adaptors for XLRs are also provided.

In one of the annexes to the draft, provision is made for manufacturers to protect their electronics from spurious voltages traveling down the wrong pins.

While this will not protect against destruction that mains voltage would have on the electronics, the minimum specification does provide some good protection for your expensive equipment – at least 30VAC or 42VDC potential between most pin combinations. Devices that meet these requirements can be labeled as “DMX512-A Protected”. You can be guaranteed that this feature will be heavily marketed when it is adopted by the manufacturers.

If you work with DMX everyday, it is well worth downloading the draft to see what impact these kinds of changes will have on your work. There is no doubting that there will be an impact.

Pair	Wire #	Color	Function	DMX512 Pin
Pair 2	1	white/orange	data 1	+ DMX512 Pin 3
	2	orange	data 1	- DMX512 Pin 2
Pair 3	3	white/green	data 2	- DMX512 Pin 5
	6	green	data 2	- DMX512 Pin 4
Pair 1	4	blue	Not assigned	n/a
	5	white/blue	Not assigned	n/a
Pair 4	7	white/brown	Signal Common (0v)	DMX512 Pin 1
	8	brown	Signal Common (0v)	DMX512 Pin 1
Shield (drain)				

### John Grimshaw 's Comments to ESTA...

As a part of the drafting process, lighting specialists have the opportunity to make comments on the standard as it currently stands. One point that I thought was not satisfactorily dealt with was the use of alternate connectors for DMX. The standard indicates that if a device is too small to be fitted with a standard 5pin XLR, then an alternate connector may be used. While they specify that a RJ45 should NOT be used (because of the potential for damage if Ethernet equipment is plugged in), they do not make any recommendations for any type of plug that may be used. I think this is a serious oversight, as it creates potential for the technician on the ground to have to deal with (or have to make) numerous DMX adaptors.

Because the option is there to make suggestions to ESTA and ANSI, I have submitted the following to address this issue:

*In the draft, section 8 deals with connectors. I understand and endorse the concepts stated there, however I am of the opinion that the item "8.1.2 Concession for use of an alternate connector (NCC DMX512-A)" should include a recommendation of*

*an alternate connector so that the*

*manufacturers have a specified alternative.*

*Obviously, it should be a readily available*

*connector, and I would like to suggest the*

*9pin D connector as used by RS-232. By*

*following the requirements of 8.1.2, the pins*

*1 to 5 would match pins 1 to 5 of the XLR.*

*This type of connector is already used by*

*manufacturers to make very small devices.*

*This connector could also be recommended*

*for use on UTP/STP cable installations, and*

*provide connections for all wires including the drain.*

*I would suggest the following as an amendment:*

-----

*8.5 Where possible, the alternate connector should be a 9pin Sub D connector (as typically used by RS232 serial data control). If using this type of connector, the following conditions must be met:*

*1) Wiring of the numbered pins shall conform in numbering to the standard 5pin XLR.*

*2) Use of male and female connectors should comply with requirements stated in 8.1.*

*3) If using this connector to terminate UTP/STP wiring installations, the following wiring should be applied:*

*pin 1 to wire 8 (brown) - DMX512 Pin 1*

*pin 2 to wire 2 (orange)- DMX512 Pin 2*

*pin 3 to wire 1 (white/orange) - DMX512 Pin 3*

*pin 4 to wire 6 (green) - DMX512 Pin 4*

*pin 5 to wire 3 (white/green) - DMX512 Pin 5*

*pin 6 to wire 7 (white/brown) - DMX512 Pin 1*

*pin 7 to wire 4 (blue) - optional low voltage DC*

*pin 8 to wire 5 (white/blue) -optional low volt. DC*

*pin 9 to drain/shield*

-----

*If you can think of reasons specifically to not*

*use this connector (I cannot think of any*

*reason), I still think that it is very important*

*that an alternate connector should be specified*

*in the standard.*

*If you want to read and make comments on the standard, go to:*

[www.esta.org/tsp/E1-11inst.htm](http://www.esta.org/tsp/E1-11inst.htm)



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BenQ DX550

**This report is the most comprehensive list of projectors available for sale in this part of the world.**

While some manufacturers have more models than the ones detailed here (see the Brands table below), this list gives you a very good indication of the choices.

The report has been divided into three categories; under 5kg, 5-10kg and 10-15kg. It is interesting to note the huge growth in the lightest category, while the heaviest "portable" category has been left to a handful of premium brands.

One brand that is not represented here is Infocus (distributed by Electroboard) - they were not able to submit information in time.

For the sake of space, the word "Lumens" has been omitted after "ANSI", and contrast measurements are most likely to not be proper ANSI measurements.

On the subject of brightness, it has been the experience of this writer that ALL manufacturers over estimate the ANSI Lumens by anywhere from 130% to 200% - so you should use these figures as rough guides only.

Compiled by John Grimshaw



Elmo EDP-X70

### Under 5kg

**BenQ DS550/DX550** 1x 0.7" DLP, Native: 800x600/1024x768 (max res: 1280x1024), 1200 ANSI, 450:1 Contrast, 2.3kg, Not 1080i Capable, Inputs: Composite, S-Video, VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Remote control with mouse \$4,999/\$5,999

**BenQ DS650/DX650** 1x 0.7" DLP, Native: 800x600/1024x768 (max res: 1280x1024), 1600 ANSI, 600:1 Contrast, 3.1kg, 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Remote control, Presentation wizard, Progressive scan \$6,499/\$7,999

**BenQ DS660/DX660** 1x 0.7" DLP, Native: 800x600/1024x768 (max res: 1280x1024), 2000 ANSI, 600:1 Contrast, 3.1kg, 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Remote control, Presentation wizard, Progressive scan \$7,299/\$8,999

**BenQ SL705S/SL705X** 1x 0.7" DLP, Native: 800x600/1024x768 (max res: 1280x1024), 1100 ANSI, 600:1 Contrast, 1.7kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: Audio output, Features: Integrated lens cap, Remote control, Presentation wizard, Progressive scan \$5,999/\$7,499

**BenQ VP150X** 3x 0.7" DLP, Native: 1024x768 (max res: 1280x1024), 1800 ANSI, 450:1 Contrast, 3.4kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Remote control \$7,999

**Elmo EDP-30** 3x 0.7" LCD, Native: 800x600 (max res: 1024x1280), 1100 ANSI, 300:1 Contrast, 2.4kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Whisper mode \$3,995

**Elmo EDP-X20** 3x 0.9" LCD, Native: 1024x768 (max res: 1024x1280), 1200 ANSI, 300 Contrast, 3.2kg, Not 1080i Capable, Inputs: Composite, S-Video, (RCA), VGA, Audio: Built in 1w Stereo speakers, Features: Integrated lens cap, Remote mouse \$5,295

**Elmo EDP-X70** 3x 0.9" LCD, Native: 1024x768 (max res: 1200x1600), 2000 ANSI, 400:1 Contrast, 4.1kg, 1080i Capable, Inputs: Composite, S-Video, DVI (RCA), VGA, Audio: Built in 1w Stereo speakers, Features: Auto keystone correction H&V \$7,995

**Epson EMP-720** 3x 0.9" LCD (without MLA), Native: 1024x768 (max res: 1600x1200), 1500 ANSI, 400:1 Contrast, 1.9kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio: 1W Monaural speaker, Features: Micro-light, Automatic Keystone Correction \$6,745

**Epson EMP-730** 3x 0.9" LCD (with MLA), Native: 1024x768 (max res: 1600x1200), 2000 ANSI, 400:1 Contrast, 1.9kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio: 1W Monaural speaker, Features: Micro-light, super-bright, Automatic Keystone Correction \$7,927

**Epson EMP-820** 3x 0.9" LCD (with MLA), Native: 1024x768 (max res: 1600x1200), 2500 ANSI, 400:1 Contrast, 4.2kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio: 5W Monaural speaker, Features: Advanced desktop presentations or installations, Picture in Picture \$9,544

**Epson EMP-TW100** 3x 0.87" LCD, Native: 1365x1024 (max res: 1152x864), 700 ANSI, 600:1 Contrast, 4.2kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio:, Features: True 16:9 wide screen compatible with DVD and Digital TV \$6,745

**Fujitsu LPF4800A** 1x 0.9" LCD, Native: 1024x768 (max res: 1280x1024), 1500 ANSI, 300:1 Contrast, 3.6kg, 1080i Capable, Inputs: Composite, S-Video, RGB/Component (RCA), Audio: Built in 1w Mono speaker, Features: Key Stone Adjustment, Optional Infra Red Remote, lots more on our website \$6,699

**Hitachi CP-S370W** 3x 0.9" LCD, Native: 800x600 (max res: 1024x768), 2200 ANSI, 350:1 Contrast, 3.2kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, Audio: Built in 1w Stereo speakers, Features: Whisper Mode refer to our web site \$6,495

**Hitachi CP-X275W** 3x 0.7" LCD, Native: 1024x768 (max res: 1280x1024), 1200 ANSI, 300:1 Contrast, 2.4kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, Audio: Built in 1w Mono speakers, Features: Short throw lens refer to our web site \$7,495

**Hitachi CP-X380W** 3x 0.9" LCD, Native: 1024x768 (max res: 1280x1024), 2000 ANSI, 400:1 Contrast, 3.2kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: Built in 1w Stereo speakers, Features: Whisper Mode refer to our web site \$9,295

**Hitachi CP-X430W** 3x 0.9" LCD, Native: 1024x768 (max res: 1280x1024), 2500 ANSI, 350:1 Contrast, 4.5kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio: 1w Stereo speakers, Features: Whisper Mode - refer to our web site \$11,995

**LG LP-XG2** 3x 0.9" LCD, Native: 1024x768 (max res: XGA), 1200 ANSI, 350:1 Contrast, 3.4kg, 1080i Capable, Inputs: S-Video, A/V, audio, PC in/out, Audio: Mono 1W speaker, Features: \$4,999

Brand	Distributor	Sales Phone	Web	<5kg	<15kg
Barco	Barco Systems	+61 3 9646 5833	www.barco.com	0	0 4
BenQ	BenQ	+61 2 9714 6800	www.benq.com.au	9	1 0
Elmo	C .R Kennedy & Co	+61 3 9 823 1555	www.crkennedy.com.au	3	0 0
Epson	Epson	+61 2 9903 9000	www.epson.com.au	6	2 0
Fujitsu	Fujitsu General	+61 2 8822 2500	www.fujitsugeneral.com.au	2	1 0
Hitachi	Hitachi Australia Pty Ltd	+61 2 9888 4100	www.hitachi.com.au	5	2 0
JVC	Hagemeyer	+61 2 9370 8888	www.jvc-australia.com	0	1 1
LG	LG Electronics	+61 2 9684 8000	www.lge.com.au	2	1 0
Mitsubishi	Mitsubishi Electric Australia	+61 2 9684 7777	www.mitsubishi-electric.com.au	4	3 0
NEC	NEC Australia Pty Ltd	131 632	www.nec.com.au	5	4 2
Panasonic	Panasonic	+61 2 9986 7400	www.panasonic.com.au	3	4 4
Plus	Amber Technology	1800 251 367	www.ambertech.com.au	9	0 0
Sanyo	Sanyo Australia Pty Ltd	+61 2 8825 2822	www.sanyo.com.au	5	4 0
Sharp	Sharp Corporation	1300 135 530	www.sharp.net.au	3	2 0
Sony	Sony Australia Ltd	1 800 017 669	www.sony.com.au	3	2 1
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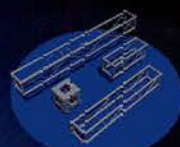


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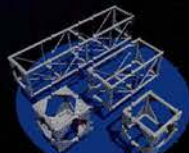
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# PORTABLE PROJECTORS



Mitsubishi XD200U



NEC VT45



Plus U3-1100zw



Sanyo PLCSW20

All Manufacturers were given the opportunity to say a few extra words about their product. Here is what they had to say...

**Barco's** IQ series offers new functionality such as advanced picture-in-picture, true seamless switching, dual-lamps, and an advanced modular design. In addition, the IQ offers high-brightness and superior picture quality. With its exclusive features, the IQ provides intelligent solutions for high-end applications, such as meeting rooms, videoconferencing centres, training facilities and auditoriums.

**Epson** - All around the world EPSON projectors are a familiar sight in corporate conference rooms, university lecture theatres and increasingly in the home - hardly surprising given EPSON's advanced projector technologies and global reputation as a colour image leader. The range of portable multimedia projectors enables you to project screen images directly from your computer and incorporate graphics, animated sequences, even live video - all with stereo sound.

**LG** are leaders in display technology, we have a range of LCD projectors, LCD TVs, LCD rear projection screens and Plasma display panels. The LG brand was launched in Australia in 1997. An innovative product range, backed up with an extensive marketing campaign has led to strong sales growth. With annual sales in 2001 over AUS\$500 million, LG Electronics currently has branch offices in New South Wales, Victoria, South Australia and Western Australia, employing over 150 staff. LG Electronics Australia is a proud sponsor of the LG Melbourne Demons (AFL) and the LG Cronulla Sharks (NRL). LG also sponsors the Wesley Mission's Lifeforce program. For more product information, visit LG Australia's website ([www.lge.com.au](http://www.lge.com.au)) or call 02 9684 8000.

## Ultra Portables Under 5kg (continued)

**LG LP-XG22** 3x 0.9" LCD, Native: 1024x768 (max res: XGA), 1600 ANSI, 400:1 Contrast, 3.4kg, 1080i Capable, Inputs: S-Video, A/V, audio, PC in/out, Audio: Mono 1W speaker, Features: \$5,999

**Mitsubishi SD200U** 1x 0.7" DLP, Native: 800x600 (max res: 1280x1024), 1800 ANSI, 450:1 Contrast, 3kg, Not 1080i Capable, Inputs: Composite x 2, S-video x 2, VGA x 2, Audio: Built in 2w Mono speaker, Features: sRGB, IRIS, Faroudja Line DoublerFree Carry case \$7,290

**Mitsubishi SL1U** 1x 0.7" LCD, Native: 800x600 (max res: 1280x1024), 1000 ANSI, 600:1 Contrast, 2.9kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (VGA), VGA, Audio: Built in 1w Mono speaker, Features: sRGB, IRIS, Free carry case, Lots more on website \$4,490

**Mitsubishi XD200U** 1x 0.7" DLP, Native: 1024x768 (max res: 1280x1024), 1800 ANSI, 450:1 Contrast, 3kg, Not 1080i Capable, Inputs: Composite x 2, S-video x 2, VGA x 2, Audio: Built in 2w Mono speaker, Features: sRGB, IRIS, Faroudja Line DoublerFree Carry case \$8,490

**Mitsubishi XL1U** 1x 0.7" LCD, Native: 1024x768 (max res: 1280x1024), 1100 ANSI, 350:1 Contrast, 2.9kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (VGA), VGA, Audio: Built in 1w Mono speaker, Features: sRGB, IRIS, Free carry case, Lots more on website \$6,490

**NEC LT150Z** 1x 0.71" DLP, Native: 1024x768 (max res: 1600x1200), 1000 ANSI, 800:1 Contrast, 1.5kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx1, RS232, Audio: Stereo mini jack, Built-in speaker x 1, Features: Ultra compact B5 size, built-in PC Card viewer, XGA res, carry case \$6,780

**NEC LT157** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 1500 ANSI, 600:1 Contrast, 2.2kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx1, RS232, Audio: 1 mini-jack input (stereo), Built-in speaker x 1, Features: Eco mode: 2500hr lamp life, built-in PC Card viewer, carry case \$7,233

**NEC VT45** 3x 0.7" LCD, Native: 800x600 (max res: 1600x1200), 1000 ANSI, 400:1 Contrast, 2.5kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx1, RS232, Audio: Stereo RCA, Stereo mini jack, Built-in speaker x 1, Features: Vertical & horizontal lens shift, 2-stage eco mode(3500hr lamp life), case \$3,819

**NEC VT650** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 1500 ANSI, 400:1 Contrast, 3.9kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx1, RS232, Audio: RCA/Mini Jack, Built-in speaker x 1, Features: Eco mode: 3000hr lamp life, silent operation less than 35dB, carry case \$6,780

**Panasonic PT-AE100** 3x 0.7" LCD, Native: 858x484 (max res: 1024x768), 700 ANSI, 500:1 Contrast, 2.7kg, 1080i Capable, Inputs: Computer, S-Video, Video, Audio, Component Video, Audio: Built in 2w Mono speaker, Features: 16:9 aspect ratio, digital keystone correction \$4,395

**Panasonic PT-LC55E** 3x 0.7" LCD, Native: 800x600 (max res: 1280x1024), 1200 ANSI, 400:1 Contrast, 3kg, 1080i Capable, Inputs: Computer, S-Video, Composite, Audio, Component Video, Audio: Built in 2w Mono speaker, Features: Digital keystone correction, extra short-throw lens \$4,995

**Panasonic PT-LC75E** 3x 0.7" LCD, Native: 1024x768 (max res: 1600x1200), 1200 ANSI, 400:1 Contrast, 3kg, 1080i Capable, Inputs: Computer, S-Video, Composite, Audio, Component Video, Audio: Built in 2w Mono speaker, Features: Digital keystone correction, extra short-throw lens \$6,495

**Plus U2 Series (U2-X1130/U2-813)** 1 x 0.7" DLP, Native: XGA/SVGA (max res: 1280x1024), 1300 ANSI, 800:1 Contrast, 2.5kg, 1080i Capable, Inputs: #1 Composite RCA, #2 Svideo, #3 RGB, Audio: Stereo Input to 1w Speaker, Features: Laser Pointer in Remote \$8,770/\$6,944

**Plus U2 Series (U2-X2000)** 1x 0.9" DLP, Native: 1024x768 (max res: 1600x1200), 2000 ANSI, 650:1 Contrast, 2.5kg, 1080i Capable, Inputs: #1RGB/YpPr #2DVI/RGB/YpPr #3Composite RCA, #4S-Video #5Compact Flash, Audio, Features: Compact Flash Presentations, Chalkboard, World's Smallest 2,000Lmn Proj \$10,500

**Plus U3 Series (U3-1100zw/U3-810zw)** 1 x 0.7" DLP, Native: XGA/SVGA (max res: 1280x1024), 1,000/2,200 ANSI, 650:1 Contrast, 1.5kg, 1080i Capable, Inputs: #1 Composite RCA, #2 Svideo, #3 RGB/YpPr, Audio: Stereo Input to .5w Speaker, Features: W Mode for 2,200 ANSI Lumen output Cinema Mode, 16:9 Switchable \$7,999/\$4,750

**Plus V Series (V-1080/807)** 1 x 0.7" DLP, Native: XGA/SVGA (max res: 1280x1024), 800 ANSI, 800:1 Contrast, 0.9kg, 1080i Capable, Inputs: #1 Accepts DVI-A&D,RGB,YpPr #2 Accepts Composite, Svideo, YpPr, Audio: Stereo Input to .5w Speaker, Features: Picture in Picture, H&V Keystone, World's Smallest Data Projector \$7,999/\$5,999

**Sanyo PLCSU30** 3x 0.9" LCD, Native: 800x600 (max res: 1600x1200), 1700 ANSI, 350:1 Contrast, 3.9kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI, Audio: Built in 1w speaker, Features: Mouse control remote with laser pointer and carry bag included. \$6,495

**Sanyo PLCSW20** 3x 0.7" LCD, Native: 800x600 (max res: 1600x1200), 1000 ANSI, 300:1 Contrast, 2.5kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, Audio: 1w spkr, Features: Mouse control remote & carry bag included. \$4,995

**Sanyo PLCXU35** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 2000 ANSI, 350:1 Contrast, 3.9kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI, Audio: Built in 1w speaker, Features: Mouse control remote with laser pointer and carry bag included. \$8,995

**Sanyo PLCXW20** 3x 0.7" LCD, Native: 1024x768 (max res: 1600x1200), 1100 ANSI, 300:1 Contrast, 2.6kg, Not 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, Audio: Built in 1w speaker, Features: Mouse control remote and carry bag included. \$6,495

**Sharp PGM20S** 1x 0.55" DLP, Native: 800x600 (max res: 1280x1024), 1300 ANSI, 1000:1 Contrast, 2.6kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), DVI, USB, Audio: Built in 2w mono speaker, Features: 3x speed colour wheel, sRGB, Pic. In Pic, switchable A L, 2000hr lamplife \$5,295

**Sharp PGM20X** 1x 0.7" DLP, Native: 1024x768 (max res: 1600x1200), 1900 ANSI, 1000:1 Contrast, 2.6kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), DVI, USB, Audio: Built in 2w mono speaker, Features: 3x speed colour wheel, sRGB, Pic. In Pic, switchable A L, 2000hr lamplife \$7,995

**Sharp PGM25X** 1x 0.7" DLP, Native: 1024x768 (max res: 1600x1200), 1900 ANSI, 1000:1 Contrast, 2.6kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), DVI, USB, Audio: Built in 2w mono speaker, Features: Wireless presentation ability, memory card, Gyro RF remote, 2000hr lamplife \$9,995

**Sony VPL-CS5** 3x 0.7" LCD, Native: 800x600 (max res: 1024x768), 1600/1800 ANSI, 2.7kg, Not 1080i Capable, Inputs: 15 pin, S Video, Component, Audio: Stereo mini jack in, 1W out, Features: Remote commander, USB \$4,400

**Sony VPL-CX5** 3x 0.7" LCD, Native: 1024x768 (max res: 1400x1050), 1800/2000 ANSI, Not specified Contrast, 2.7kg, Not 1080i Capable, Inputs: 15 pin, S Video, Component, Audio: Stereo mini jack in, 1W out, Features: Remote commander, USB, Projector Station 4.1 \$6,490

**Sony VPL-PX11** 3x 0.9" LCD, Native: 1024x768 (max res: 1280x1024), 2000 ANSI, Not specified Contrast, 4.9kg, Not 1080i Capable, Inputs: 2 x 15pin, S-video, Component, 15pin out, Audio: 3 inputs, switched out with vol. Cont. 2 x 0.5 Watt, Features: RS232, USB \$8,503

**Viewsonic PJ1060** 1x 0.8" LCD, Native: 1024x768 (max res: 1600x1200), 1000 ANSI, 450:1 Contrast, 2.4kg, Not 1080i Capable, Inputs: 15-pin mini D-sub, 24 pin DVI-D, Audio: 2 2W speakers, Features: able to connect 2 computers and one video source \$8,099

### Portables 5-10kg

**BenQ HT480W** 1x 0.7" DLP, Native: 848x600 (max res: 1280x1024), 800 ANSI, 700:1 Contrast, 6.6kg, 1080i Capable. Inputs: Composite, S-Video, Component, VGA, BNC, Audio: , Features: 6 segment colour wheel, Progressive scan \$9,999

**Epson EMP-7700** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3000 ANSI, 400:1 Contrast, 6.9kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio: 3W + 3W, Features: -30 to +30 degrees Keystone Correction, Picture in Picture \$12,132

**Epson EMP-9100** 3x 1.3" LCD, Native: 1280x1024 (max res: 1600x1200), 2400 ANSI, 300:1 Contrast, 9.1kg, 1080i Capable, Inputs: Composite Video, S-Video, Component Video, Video RGB, Audio: 3W + 3W SRS, Features: -30 to +30 degrees Keystone Correction, Stackable, Picture in Picture \$31,868

**Fujitsu LPF5200** 1x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 1000 ANSI, 250:1 Contrast, 6.8kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio: 1w Stereo speakers, Features: Full Function Remote, Auto Retract Lens System, lots more on our website \$4,399

**Fujitsu LPF7200** 1x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 2800 ANSI, 300:1 Contrast, 7.8kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI, Audio: 3w Stereo speakers, Features: Electronic or Manual Keystone Adjustment, Opt Wired R/C, Mouse Control. \$9,399

**Hitachi CP-SX5500W** 3x 0.9" LCOS, Native: 1365x1024 (max res: 1600x1200), 1500 ANSI, 600:1 Contrast, 5.4kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI, Audio: 1w Stereo spkrs, Features: Whisper Mode refer to our web site \$17,995

**Hitachi CP-X990W** 3x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 3500 ANSI, 500:1 Contrast, 6.5kg, 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio: Stereo speakers, Features: Whisper Mode refer to our web site \$16,995

**JVC DLA-G3010ZGE** 3x 0.9" D-ILA, Native: 1365 X 1024 (max res: 1600x1200), 1300 ANSI, 200:1 Contrast, 6kg, 1080i Capable, Inputs: Composite, S-Video, Component (BNC), VGA, Audio: Built in 1W mono speaker, Features: JVC Adaptive Digital Pixel Conversion, 10-bit digital gamma correction \$16,999

**LG RLJA-10** 3x 1.2" LCD, Native: 1280x720 (max res: WXGA), 1600 ANSI, 350:1 Contrast, 9.6kg, 1080i Capable, Inputs: 2x AV, Svideo, PC i/o, Audio: 2x 1.5W spkrs, Features: Infra red wireless TX \$9,999



Sharp PGM25X



Sony VPL-PX11

## Panasonic

Creative - Intelligent - Versatile

The **AG-MX70** digital A/V mixer provides broadcast-grade 4:2:2:4 digital component picture quality. It features more than 600 effect patterns and a 30-frame graphics buffer for roll, crawl and logo animation using title files downloaded from a PC.

A large LCD panel with a matrix menu helps assure quick, easy operation. Offering optional 3D video effects and SDI interface, this A/V mixer is ready for full-fledged digital post-production.

The versatile **AG-MX70** is right at home when connected to a digital editing system, or when used as a switcher either in the studio or at live events.

**VIC/SATAS**  
Unit 2, 137-145 Rooks Road  
Vermont VIC 3133  
Tel: 61 3 8872 8828  
Mobile: 0414 249 377  
Fax: 61 3 8872 6888

**WA**  
33 Abernethy Road  
Belmont WA 6104  
Tel: 61 8 9477 0153  
Mobile: 0414 249 226  
Fax: 61 8 9477 0157

**QLD/NT**  
6 Eagleview Place  
Eagle Farm QLD 4305  
Tel: 61 7 3335 1281  
Mobile: 0414 542 720  
Fax: 61 7 3335 1240

**NSW**  
2 Griffiths Avenue  
North Ryde NSW 2113  
Tel: 61 2 3387 3224  
Mobile: 0414 118 459  
Fax: 61 2 4889 3313



Mitsubishi X500 J



Sharp XGC50XE



Yamaha DP-X1



Barco iQ R300

Sanyo is a global organisation made up of over 130 sales and manufacturing facilities in 27 countries all being committed to becoming "an indispensable element in the lives of people". Sanyo Multimedia is an area of key strength that reflects Sanyo's dedication to research and development, and to product innovation through its manufacturing prowess. Sanyo's global leading position in Multimedia technology is confirmed through its status as the world's largest manufacturer of both LCD Projectors and of digital cameras.

Sharp PGM25X is ideal for sales/marketing professionals, small business owners, corporate trainers or anyone requiring high performance and compatibility in a portable projector. As Sharp's flagship wireless projector the PGM25X uses IEEE 802.11b wireless LAN technology and an exclusive new image compression algorithm to permit real-time data transmission over a wireless network. In addition, the PGM25X's memory card slot is compatible with a wide variety of memory cards and lets users deliver high-quality presentations directly from the projector, without an accompanying Notebook or PC. The PGM25X also features Sharp's GyroRemote, which eliminates the need for line-of-sight remote control, letting users operate the PGM25X from any angle within a 30 metre radius. This combination of functionality and high image quality ensures the PGM25X is the perfect travel partner for mobile executives.

## Portables 5-10kg (continued)

**Mitsubishi S490U** 1x 1.3" LCD, Native: 800x600 (max res: 1280x1024), 2600 ANSI, 500:1 Contrast, 6.9kg, Not 1080i Capable, Inputs: Composite x 2, S-Video x 2, VGA x 2, Audio: Built in 3w Stereo speakers, Features: sRGB, IRIS, Natural Colour Matrix Lots more on website \$8,490

**Mitsubishi X490U** 1x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 2600 ANSI, 500:1 Contrast, 6.9kg, Not 1080i Capable, Inputs: Composite x 2, S-Video x 2, VGA x 2, Audio: Built in 3w Stereo speakers, Features: sRGB, IRIS, Natural Colour Matrix Lots more on website \$11,490

**Mitsubishi X500U** 1x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 3700 ANSI, 500:1 Contrast, 6.9kg, Not 1080i Capable, Inputs: Composite x 2, S-Video x 2, VGA x 2, Audio: Built in 3w Stereo speakers, Features: sRGB, IRIS, Natural Colour Matrix Lots more on website \$11,490

**NEC GT950** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 2000 ANSI, 400:1 Contrast, 7.2kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx1, DVI input x 1, RS232, Audio: 2xL/R RCA in, 1xL/R RCA out, 2xmini-jack in, 1xmini-jack output, Features: Wide range horizontal & vertical lens shift, supports sRGB, k/stone correc. \$11,226

**NEC MT1050** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 2100 ANSI, 400:1 Contrast, 5.9kg, Not 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx2, RS232, Audio: L/R RCA inputs, 2xmini-jack inputs, 1xmini-jack output, 2xStereo speakers, Features: Built-in PC Card viewer, Keystone correction, Eco-mode \$7,534

**NEC MT1056** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3000 ANSI, 450:1 Contrast, 5.9kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx2, RS232, Audio: L/R RCA inputs, 2xmini-jack inputs, 1xmini-jack output, 2xStereo speakers, Features: Built-in PC Card viewer, Keystone correction, Eco-mode \$12,808

**NEC MT850** 3x 1.3" LCD, Native: 800x600 (max res: 1600x1200), 1700 ANSI, 400:1 Contrast, 5.9kg, Not 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, RGBx2, RS232, Audio: L/R RCA inputs, 2xmini-jack inputs, 1xmini-jack output, 2xStereo speakers, Features: Built-in PC Card viewer, Keystone correction, Eco-mode \$5,726

**Panasonic PT-L520E** 3x 0.9" LCD, Native: 800x600 (max res: 1280x1024), 2000 ANSI, 300:1 Contrast, 3.9kg, 1080i Capable, Inputs: Computer, S-Video, Composite, Audio, Component Video, Audio: Built in 2w Mono speaker, Features: Digital keystone correction, extra short-throw lens \$6,795

**Panasonic PT-L712E** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 1600 ANSI, 400:1 Contrast, 3.8kg, 1080i Capable, Inputs: RGB, Component, Video, S-Video, Audio, Audio: Built in 2w stereo speakers, Features: Digital keystone correction, extra short-throw lens \$7,495

**Panasonic PT-L720E** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 2200 ANSI, 400:1 Contrast, 4kg, 1080i Capable, Inputs: Computer, S-Video, Composite, Component Video, Audio, Audio: Built in 2w Mono speaker, Features: Digital keystone correction, extra short-throw lens \$8,495

**Panasonic PT-L730NTE** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 2200 ANSI, 400:1 Contrast, 4kg, 1080i Capable, Inputs: Computer, S-Video, Composite, Component Video, Audio, USB Mouse, Audio: Built in 2w Mono speaker, Features: Wireless remote control, SD memory card, keystone correction \$10,495

**Sanyo PLCXP40** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 2600 ANSI, 500:1 Contrast, 7.9kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI (3 selectable inputs), Audio: Built in 2w Stereo speakers, Features: Lens shift, Eco mode, full remote, optional lens \$13,995

**Sanyo PLCXP41** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3300 ANSI, 550:1 Contrast, 7.9kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI (3 selectable inputs), Audio: Built in 2w Stereo speakers, Features: Lens shift, Eco mode, full remote, optional lens & network control \$15,995

**Sanyo PLCXP45** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3500 ANSI, 800:1 Contrast, 8.4kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI (3 selectable inputs), Audio: Built in 2w Stereo speakers, Features: Lens shift, Eco mode, full remote, optional lens \$16,995

**Sanyo PLCXP46** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 4100 ANSI, 800:1 Contrast, 8.4kg, 1080i Capable, Inputs: Composite, S-Video, Component (RCA), VGA, DVI (3 selectable inputs), Audio: Built in 2w Stereo speakers, Features: Lens shift, Eco mode, full remote, optional lens & network control \$17,995

**Sharp XGC50XE** 3x 0.9" LCD, Native: 1024x768 (max res: 1600x1200), 3000 ANSI, 400:1 Contrast, 5.1kg, 1080i Capable, Inputs: Composite, S-Video, Computer RGB/component, RS232, Audio: Built in 3w mono speaker, Features: recessed lens, switchable A L, super quiet, networkable, optional lens \$11,995

**Sharp XGP20XE** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3300 ANSI, 600:1 Contrast, 9.5kg, Not 1080i Capable, Inputs: Composite, S-Video, Computer RGB/component, RS232, DVI, Audio: Built in 2w stereo speakers, Features: lens shift, 4 optional lenses, networkable, Gyro RF remote, super quiet \$16,995

**Sony VPL-PX15** 3x 0.9" LCD, Native: 1024x768 (max res: 1280x1024), 2000 ANSI, Not specified Contrast, 5.3kg, Not 1080i Capable, Inputs: 15 pin, composite, S-Video, Internal PC, Audio: 2 x 0.5 Watt, Features: E/net, w/less, WIN CE, MS viewers, IE4, browser mngmt, email, SNMP, RS232, IP \$13,750

**Sony VPL-PX32** 3x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 3000/2400 ANSI, Not specified Contrast, 7.2kg, 1080i Capable, Inputs: TMDS, 5 BNC, 2 x 15 pin, Composite, S-Video, 15 pin out, Audio: 3 inputs, switched out with vol, stereo spkrs 5W total, Features: USB, Control S, RS232, 2 x remote mouse \$16,900

**Yamaha DP-X1** 1x 0.9" DLP, Native: 1024x768 (max res: 1024x768), 800 ANSI, 900:1 Contrast, 7.8kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio:, Features: Low noise level, Cinema quality black levels \$16,999

## Desktop/Small Installation 10-15kg

**Barco iQ G300** 3x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 3500 ANSI, >400:1 Contrast, 12.9kg, 1080i Capable, Inputs: Composite, SVHS, Component, RGB, DVI, Macintosh, HDTV, 140MHz, Audio: N/A, Features: Dual Lamp, Picture in Picture, seamless source switching, network capable \$25,025

**Barco iQ R300** 3x 1.3" LCD, Native: 1366x1024 (max res: 1600x1200), 3300 ANSI, >400:1 Contrast, 12.9kg, 1080i Capable, Inputs: Composite, SVHS, Component, RGB, DVI, Macintosh, HDTV, 140MHz, Audio: N/A, Features: Dual Lamp, Picture in Picture, seamless source switching, network capable \$37,565

**Barco iQPRO G300** 3x 1.3" LCD, Native: 1024x768 (max res: 1280x1024), 3500 ANSI, >400:1 Contrast, 12.9kg, 1080i



After Technical Direction Company purchased four Barco R8's to add to their hire inventory, they invited Connections to come and take a look – and evaluate the projector...

<b>Native resolution:</b>	1280 x 1024 pixels
<b>Imaging system:</b>	3x 1.3" DMD (DLP)
<b>Lens:</b>	many options
<b>ANSI Lumen:</b>	8000 (specified) 6009 (measured)
<b>Weight:</b>	57kg
<b>Dimensions:</b>	875x585x429 (WxHxD)
<b>Inputs:</b>	2x DVI, 1x SDI & 2x 5BNC (RGBHV, Component, S-Video, composite)
<b>Vision Outputs:</b>	DVI
<b>Vision Source:</b>	All standard TV and computer signals up to UXGA
<b>Price (rrp inc GST):</b>	<b>\$118,000</b>
<b>New Lamp</b>	<b>\$10,000</b>
<b>Refurbished Lamp</b>	<b>\$5,400</b>
<b>Sales Enquiries:</b>	+61 3 9646 5833
<b>Internet:</b>	www.barco.com.au

The Barco R8 Performer uses that same chassis as the older G5, but with some hardware software and lamp upgrades to make the unit capable of reaching a spec of 8000 ANSI Lumens. The unit is a three chip DLP with a native resolution of 1280 x 1024.

In terms of set-up, there is almost every kind of parameter adjustment you could possibly ask for – perfect for a professional or hire company, but this is not the sort of projector you would let unskilled people set up. The projector has far more features than I have space here to describe them so here is a run-down of the more interesting features.

Intended for easy multi-projector use, the unit is designed to be stackable with little external adjustment. An integrated "Constant Light Output" (CLO) feature matches the actual light output between projectors with varying ages of lamps (all are lamps slowly deteriorate with age). Extremely versatile motorised lens shift which has a vast range of movement before you have to physically shift the projector. According

to the documentation, a high contrast mode changes the 450:1 contrast to 900:1 (full white to full black - not ANSI measured).

A host of options for this projector includes additional SDI/HD SDI input cards, software upgrades to allow seamless edge blending (called ScenergiX) and a huge range of lenses (interchangeable from the older G5). Standard inputs include 2x 5BNC inputs for the connection of RGB analogue signals with standard sync (BNC connectors) or tri-level sync, sync on green or separate sync, Standard Video signals, S-VHS signals. There are 2x DVI inputs and one SDI.

In terms of image quality, it is almost faultless. Tested using the DVI input at native resolution, there was perfect rendering of the full 256 grey scale – with no dithering at all. Extremely complex pixel arrangements including tight text, pixel grids and other difficult to display tests were all projected without fault.

Due to the manufacturing process and the design of single lens projectors, it is almost impossible to get the red, green and blue pixels to perfectly overlay, and the Barco is no exception. However, it gets the overlay so close, you would need to enlarge the image so that each pixel was at least 2mm square, and you would have to stand right in front of the screen to see the imperfection.

One issue with all high brightness projectors is the contrast – because light still passes even when the projector is trying to shoot black. Because we could not completely control the external light in the test room at TDC, I did not measure this one the projector tested. However, from experience, I would say that an ANSI Contrast test (not the test used to measure the contrast mentioned earlier) would not be very complimentary. Having said that, for the type of application this projector would be used the relatively light black levels would not be noticed – particularly in high contrast mode.

This projector is certainly the benchmark in terms of large venue and hire projectors. Excellent image and proven reliability in the previous models. To get better you would have to pay more than double the price.

Capable, Inputs: Composite, S-VHS, Component, RGE, DVI, Mac, HDTV, 140MHz, Features: Built in computer, Dual Lamp, Picture in Picture, seamless source switching \$31,713

**Barco iQPRO R300** 3x 1.3" LCD, Native: 1366x1024 (max res: 1600x1200), 3300 ANSI, >400:1 Contrast, 12kg, 1080i Capable, Inputs: Composite, SVHS, Component, RGB, DVI, Macintosh, HDTV, 140MHz, Audio: N/A, Features: Built in computer, Dual Lamp, Picture in Picture, seamless source switching \$43,417

**JVC Timeline (DLA-G150CL)** 3x 0.9" D-ILA, Native: 1366x1024 (max res: 1600x1200), 1000 ANSI, 600:1 Contrast, 14.6kg, 1080i Capable, Inputs: Composite, S-Video, Component (3NC), RGE (BNC), VGA, DVI, Audio: N/A, Features: Professional D65 grey scale, Xenon lamp \$33,475

**NEC GT1150** 3x 1.3" LCD, Native: 1280x1024 (max res: 1600x1200) 3000 ANSI, 400:1 Contrast, 13kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, FGBx1, DVI input x 1, RS232, Audio: 2xL/R RCA inputs, 1xL/F RCA output, 2xmini-jack inputs, 1xmini-jack output, Features: Built-in PC Card viewer, keystone correction \$15,294

**NEC GT215C** 3x 1.3" LCD, Native: 1366x1024 (max res: 1600x1200), 2500 ANSI, 400:1 Contrast, 12.8kg, 1080i Capable, Inputs: Video RCAx1, S-Videox1, Component via RGB, FGBx1, DVI input x 1, RS232, Audio: 2xL/R RCA inputs, 1xL/F RCA output, 2xmini-jack inputs, 1xmini-jack output, Features: Built-in PC Card viewer, keystone correction \$26,220

**Fanasonic PT-L6500E** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3600 ANSI, 600:1 Contrast, 12.6kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio: Built in 6w Stereo speakers, Features: Digital keystone correction, intelligent image resizing \$17,995

**Panasonic PT-L6600E** 3x 1.3" LCD, Native: 1336x1024 (max res: 1600x1200), 3600 ANSI, 400:1 Contrast, 13.8kg, Not 1080i Capable, Inputs: Composite, S-Video, Component, VGA, DVI, Audio: Built in 6w Stereo speakers, Features: Digital keystone correction, intelligent image resizing \$29,995

**Sony VPL-FX50** 3x 1.3" LCD, Native: 1024x768 (max res: 1600x1200), 3500 ANSI, 350:1 Contrast, 10.5kg, 1080i Capable, Inputs: DVI, 5BNC, Internal PC15 pin out, S-Video with loop Composite with loop, Audio: No audio in this baby, Features: E/net, w/less, WIN CE, MS viewers, IE4, browser mngmt, email, S/NMP, RS232, IP \$25,000



Sony VPL-FX50

## NEWS

**Rockinghorse** - New Equipment - 24 x 1272 mod to 1068 Neve Mic Pre's. 6 x 1064 Neve Eq's. Latest Project - Upcoming sessions include The Resin Dogs, Shatterspeed and American DJ's H-Foundation.



**The Vault** - Latest Project - The Vault have just sponsored an English engineer/producer - Spencer May. He will be working in their studios for the next 3 years or so. Apparently, he has worked with far too many groovy people: Tricky, Portishead, Neneh Cherry, The Stones, and lots more. Drop a line to @ the vault on 02 9555 8298 to discuss all possibilities. Barry Turnbull - Hunters, Lash has just finished working with Natalie Miller on her debut album with Nick Mainsbridge twiddling the knobs.

**Trackdown Digital** - New Equipment - 1x Protocols HD3 and 1x Protocols HD2 systems

**Velvet Sound** - New Equipment - Pair Neve 1064's, Manley Stereo Variable-MU Compressor, pair Manley Mastering "Pultec" Eqs & Tascam DA-45-HR 24bit DAT player.

**Dex Mastering** - Latest Project - Dex Audio are pleased to announce the introduction of digital audio cassette duplication. All new programs produced at Dex are now recorded using the Digital Duplication process. Dex believe it's the first time Digital Loop-Bin technology has been made available in Australia, in which programs are recorded at high speed directly from a digital master and remain digital right up to the cassette copies. The significant benefits include: minimal quality loss, better balance between L+R channels, less distortion and more robust (CD) cassette masters - less chance of damage to the duplication master and less chance of clients having to re-supply originals for reruns. For further information contact Dex Audio +61 3 9372 2266

**Domenic Sound** - New Equipment - Studio Projects C1 Mics, top end quality condensers for a fraction of the price of a German Mic. Many top end engineers raving about these. Great value. We will get more.

**Stargate Music Productions** - Latest Project - Relocation to the new Studio facility has commenced; All going well, it should be fully operational around the start of October.

**Mixmasters Productions** - New Equipment - Avalon 2055 EQ, Avalon AD-2022 Dual Mic Pre, Distressor, Neumann U-48, API 550B EQ, UA 1176, Tannoy Dual 15" Monitors.

## NSW

ARTIST	PRODUCER	ENGINEER	SESSION
<b>Bush Traks Pty Ltd</b> +61 2 66891290 Ruth Miller (ruth@bushtraks.com) www.bushtraks.com Multitrk dig. studio w/excellent acoustics			
Sara Tindley	Dave Highet	Mastering	
Azo Bell	Dave Highet	Mastering	
Durga Babies	M. Turner/T. Tonkin	Dave Highet	Album
Asia Hatton	B. Lee/D. Highet	Dave Highet	Album

<b>Gangstar Studios</b> +61 2 4739 0451 Dave Dwyer/Rebecca Dwyer (gangstar.records@bigpond.com) www.gangstar.com.au (Under Construction) 96 Track Digital Studio -Recording/Mastering Suite - Waves L2 Ultra Maximiser, Roland Vm7000 Console + Live Recording Facility			
Glister	Dave Dwyer	Dave Dwyer	Album (Mixing)
Sarah Charwood	Dave Dwyer/Rebecca Dwyer	Dave Dwyer	Pre-Production
Dms	Dave Dwyer	Dave Dwyer	Mastering
Bernie Segedin	Dave Dwyer	Dave Dwyer	Album
Julie Woodward	Dave Dwyer	Dave Dwyer	Single No. 2

<b>Milkbar Recording Studios</b> +61 2 9516 4559 David Sykes (info@milkbarstudios.tv) www.milkbarstudios.tv One stop shop for all your multiformat, surround sound, recording and mixing requirements			
Olivia Newton John	Charles Fischer	Tony Wall	Album/Tracking
Jerk	Lamar Lowder	Lamar Lowder	Album/Tracking
Diane Dias	Jamie Carter	Paul Rodger	Album/Mixing
Poecelain	Robbie Porter	Gareth Stuckey	Album/Track & Mix
Midnight Oil	Brent Clark	Brent Clark	Single Track & Mix

<b>Rockinghorse</b> +61 2 6688 4005 Anthony Lycenko (alycenko@ozemail.com.au) www.rockinghorse.com.au			
Speedstar	Steve James	Anthony Lycenko	B sides
Rollerball	Artist	Anthony Lycenko	Album Tracking / Mixing
The Full Colour	Christian Pyle	Anthony Lycenko	EP Mixing
Giants of Science	Anthony Lycenko	Anthony Lycenko	Album Tracking

<b>Soundwarp</b> +61 2 9905 7144 Meredith Brooks (info@soundwarp.com.au) www.soundwarp.com.au Audio Mastering			
Liz Jee Band (NYC)	Liz Jee	Meredith Brooks	Album
Matahangale	Walter	Meredith Brooks	Restoration
Luke O'Shea	Luke	Meredith Brooks	Single
Leon Rabin	Leon	Meredith Brooks	Album
Peliatan	k-sona	Meredith Brooks	Album

<b>Studios 301</b> +61 2 9698 5888 Steve De Fina (stev@d301.com.au) www.studios301.com.au Recording and mixing studios for all genres of music			
Melissa Tallon	Dave Nicholas	Dave Nicholas	Album Tracking
Delta	Dave Nicholas	Dave Nicholas	Album

### Post for Film and Television

Inspector Gadget 2	Disney Films	Michael Letho	Orchestral Film Score
Craig McLachlan	Paul Mc Kercher	Paul Mc Kercher	Motion Pic Credits Sub

<b>The Vault</b> +61 2 9555 8298 James Cadsky (cadsky@ozemail.com.au) 24/0 Protocols Mix + 48trk Analogue SSL 4040/E			
Thumping Monitors Waterfront Setting			
Peabody	David Trump/Band	David Trump	Album Mix
Natalie Miller	Barry Palmer	Mainsbridge/Opitz	Album Rec/Mix

<b>Trackdown Digital</b> +61 2 9550 6890 Mike Duffy (tdmail@trackdown.com.au) www.trackdown.com 64 track Protocols digital studios x 3/ Music and audio post production			
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### Post for Film and Television

Swimming Upstream	Upstream Productions	T.Ryan (E), S.Leadley (E), K.Schiller (E)	Feature Film - music editing
Inspector Gadget 2	Disney	Simon Leadley (E), Tim Ryan (E)	Feature Film - music editing
Hero	Edko Films	T.Ryan (E), S.Leadley (E), K.Schiller (E)	Feature Film - additional music editing
Fairy Tale Police Dept	Yoram Gross-EMTV	T.Lista (E), K.Schiller (E), S.Ryan (E), E.Bell (E)	TV animated series - audio post
Tabaluga 3	Yoram Gross-EMTV	S.Ryan (E), K.Schiller (E), E.Bell (E), T.Lista (E)	TV animated series - Dialogue

<b>Velvet Sound</b> +61 2 9267 2915 Anthony The (mail@velvetsound.com.au) www.velvetsound.com.au 48CH Amek Media 51, 2" MCI & Pro Tools HD3 Studio.			
Ides of Space	Wayne Connolly	Wayne Connolly	Album
Anthony Bautovich	Wayne Connolly	Wayne Connolly & Daniel Clinch	Album
Lavaland	DC	Daniel Clinch	Mixing B-sides
Hong Jong Myung	Daniel Clinch	Daniel Clinch	Album
Big Boy Soul	Steve Callo	Fulvio Coliocolo	Album

## VIC

<b>Audrey Studios</b> +61 3 9415 8599 Craig Pilkington (audreystudios@aol.com) analog,digital tape,& Hard disc recording. Arranging/scoring for all instruments. Fully synchronised midi/sampling.			
Frank Yamma	Craig Pilkington	Album Tracks	
Tali White	Craig Pilkington	Album Tracks	
Jane Wexler	Jen Anderson	Craig Pilkington	Album Mixing
Saltwater band	Craig Pilkington/Michael Hohnen	Album Mixing	
Barb Waters	Craig Pilkington	Duets Album	

<b>Crystal Mastering</b> +61 3 9326 2318 Joe Carra & John Ruberto Mastering Suite			
Superheist	Rodes/Norton	John Ruberto	Mastering Album
Crazy Bald Heads	Band	Joe Carra	Mastering single
Penny Iking	Iking	John Ruberto	Mastering Album
Andrew Manwaring	Manwaring/Derricks	Joe Carra	Mastering EP
Last Rights	Band/Rennison	John Ruberto	Mastering EP

**Dex Mastering** +61 3 9372 2266 Adam Dempsey & Ken Shulman (mastering@dexaudio.com.au) www.dexaudio.com.au  
Professional audio mastering & restoration since 1982  
Joe Chindamo with Ray Brown Adam Dempsey 1991 album remaster  
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SaN Ben Hurt demo  
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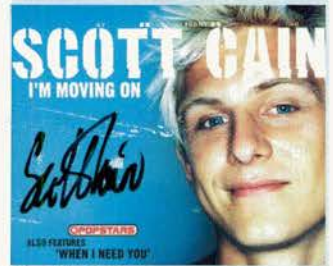
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## CHARTS



### Scott Cain

**I'm Moving On** - Produced and Arranged by Michael Szumowski, Engineered by David Hemming, Recorded at Studio M & Tiger Studio, Sydney, Programming and Piano by Michael Szumowski, Mixed by David Hemming at Tiger Studio, Assisted by Danielle McWilliam



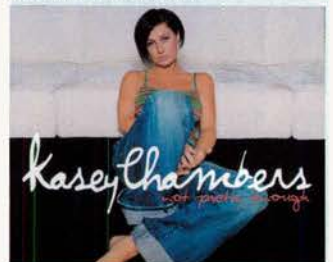
### Hannah

**No Relief** - Produced by Nick Howard, Engineered by Tod Deeley, Mixed at Sony Studios, Sydney



### Motor Ace

**Keeping Secrets** - Produced by Chris Sheldon, mixed by Chris Sheldon assisted by David Davis and Shae Mete. Recorded at Sing Sing Studios, Melbourne. Mastered by Chris Blair at Abbey Road, London.



### Kasey Chambers

**Not Pretty Enough** - Produced by Nash Chambers. Published by Gibbon Music Publishing



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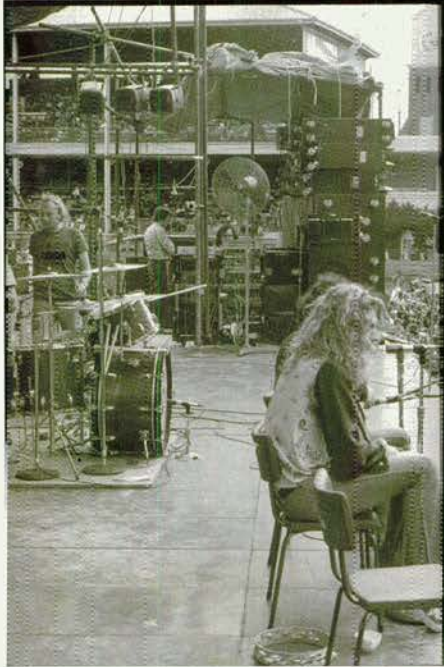
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## Building the perfect desk tape

### Polish that turd? No worries, mate

It's always a good idea to tape every gig when you're out there mixing. Nothing flash, just a record of the mix for your ears only. It's a useful tool for picking up things that might have slipped by you on the night. But what's the best way to make them? Hmm.

Well, the standard way is to run a split from the left/right outputs of the console into a cassette deck. It works, but it's a method with definite limitations, because everything appears on the tape in inverse proportion to its level on stage. The vocals are the softest on stage since they're unamplified, so proportionately they will be the ones that will need the most gain in the mix, and so will be the loudest on the tape. This is why the best tapes done in this fashion come from bigger gigs, where everything needs to be well up in the mix.

Anyway, it doesn't matter as long as the tape is just for you - after all, you know its limitations. The problem arises when the band wants a tape of the gig. You know the story; 30 seconds before the band goes onstage one of them comes up to you, drops a NoName brand cassette (with tape so old it's almost transparent) on the desk and says, "Make us a tape of the gig, willya, mate?"

So what was going to be a basic 'recording of record' for your own personal education/entertainment is now going to become, in the eyes of the band, a full-on remixed live recording. No matter how much you stress that it is a raw tape, straight off the L/R feeds, and mixed for the audience, not the band, they just don't understand why it doesn't sound like The Eagles "When Hell Freezes Over" Live CD.

This results in comments like "It's all vocals" "It's all drums" "Where's the guitar?", forgetting that the guitar was so loud that all night long people were asking you to turn it down, and you didn't even have it in the mix! And the drums leaked through the vocal mics all night because the stage was so small. It's no wonder that some engineers will never do a tape for the band.

My personal favourite method for recording off the desk is to take a mono feed from the desk to one channel of the tape deck, and a live mic sitting on the effects rack to the other. This way you can have the clarity of the mixer combined with the actual live room sound on the one tape. Play it back in headphones, and you have a surprisingly big sounding live tape that really conveys the spirit of the gig. It doesn't always come out to plan, though.

I recorded a Monash Uni Medical Students' ball in this manner, and replaying the tape in the truck provided an interesting audio experience. I can vaguely remember a bearded student, rather the worse for wear, hanging around in front of the mixing bunker (and thus my ambience mic) most of the evening, and so all of the Right channel consisted of his rather tuneless singing, albeit recorded with crystal clarity. As the night ground on, and he became more and more plastered, his singing got worse. When the band launched into Robert Palmer's cover of Moon Martin's 'Doctor doctor' song he starts singing "Doctor doctor, gimme the news, I got a bad case of foreskin blues. Foreskin, foreskin blues..." and so on, throughout the song!

I've got a boxes of desk tapes recorded in this manner, and although they sound great in headphones, where the brain does instantaneous time value correction, when they're played through speakers the phase cancellation caused by the time delay between the mixing desk and the other end of the multicore snake causes all the bottom end to disappear. There's some good stuff here; how do I fix them up so that they would sound good through speakers?

Well, thanks to the wonderful world of digital audio editing, the process was easy. You can do it to an acceptable degree, and have something that sounds OK, or you can go totally over the top and

have something that leaps out of the speakers at you. I kept going...

First, I hooked up the cassette deck to the inputs of the sound card, and recorded a track into a 2 track music editing program. I used Sound Forge, but any 2tk editor will do; if you don't have one, then [www.sonicspot.com](http://www.sonicspot.com) is sure to have a free one you can download.

If you zoom right in on the stereo track, you can see the actual beats of the music - typically the kick drum, and you can see how the live side lags behind the desk side. Find the same kick drum beat on both tracks and put a marker in the centre of each one (top image). Double-click to select the area between the two markers and at the bottom of the screen you'll see a time value for the selection. Write this value down - this is the amount that your desk channel has to be delayed so it can match up with the live channel. Deselect the area, and then select the Left (desk) channel only. Click on Effects/Delay-Simple/Move Selection Forwards and type in the time value that you wrote down. Click OK and then in a couple of seconds the desk channel is delayed by the correct amount, and the two kick drum beats are now synchronised (bottom image).

Play it back, and the whole thing should sound much tighter in the bottom end. If you want to stop there, you can. Apply the same delay to all the tracks from the same gig, and you'll be right. But you can go further, if you have the tools, time and inclination.

Duplicate the track twice, using the Save As command. Convert one to stereo using Left channel only, another using Right channel only. Name the Left one "Desk" and the Right one "Live". Copy the original track again and save it as a safety in case something goes horribly wrong.

Convert the original track to mono, using Left channel only. Apply a low pass EQ filter so that everything rolls off above, say 250 Hz - Save this track as "Sub".

Open your Stereo file called "Desk" and apply a high pass filter rolling everything off under 250 Hz, then select one channel only, then Effects/Delay-Simple and choose 'pseudo-stereo' from the drop down list. Experiment with the amount of delay with the Preview button, then save as "Desk\_wide" in case you want to play with the original some more.

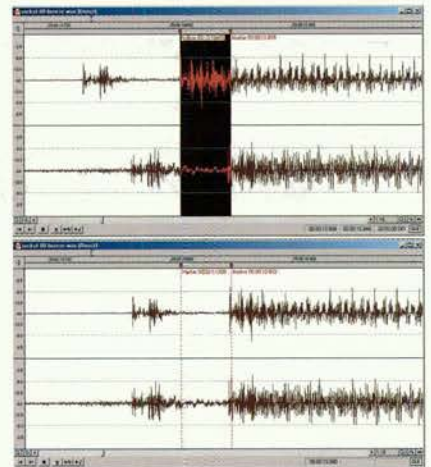
Open the "Live" file and apply the same pseudo stereo delay to it. Save as "Live\_wide".

Drag them all into a multi-track editor or sequencer - Vegas, Cakewalk, Nuendo, CoolEdit or something similar. If you don't have one, check SonicSpot.com again. You can even download a free 8 track version of ProTools from Digidesign.

Now you've got a "Sub" track, which you can EQ for some thump, a "Desk\_wide" track you can EQ for instruments and vocals, and a "Live\_wide" track you can use for room ambience and the feeling of being there.

EQ to taste, tweak the pan so the bottom end appears in the centre, add some reverb if necessary, and mix to a new track. The results should be something that sounds pretty damn good. If not, try it again. You've still got your original file saved that you can work from. You did save it, right?

Mark Woods has a collection of desk tapes from great Australian gigs at [www.e-pop.com.au](http://www.e-pop.com.au)



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## Forward Features List

### Vision

March - Installation Projectors  
May - Plasma Displays  
July - Video distribution  
September - Portable projectors  
November - Systems Control

### Lighting

February - Dimmers  
April - DMX devices and networks  
May - Effects and Consumables  
June - Luminaires  
August - Intelligent Lights  
October - Outdoor LX equipment

November - Rigging  
December - Lighting Control Desks

### Professional Audio

February - Digital Recorders  
March - Microphones  
April - Commercial Audio and Communications  
May - Amplifiers  
June - Small PA boxes  
July - Wireless Audio  
August - Analogue mixers  
September - Signal Processing & Control  
October - Studio Monitors and Headphones  
November - Digital automated mixing consoles  
December - Big PA Boxes

## Deadlines

General deadline: 15th of the month prior. Classified advertising deadline: 20th of the month prior.  
Features (Market Report) deadlines: 1st of the month prior. We go to print the last week of the month,  
and the magazine appears in the first ten days of the month. See [www.conpub.com.au](http://www.conpub.com.au) for updates.



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