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Aussies Light
up Singapore

Mixing Monitors
In The New Era

Show Me The Money!
Bankers Stifle Production Business

REVIEWED:

HHB Flashmic

Grass Valley T2

Pathport lighting network

Proco Momentum digital multicore

Audio Technica 3000 series wireless

Edirol V-1600HD

CUE03

Entertainment
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musical ever made*

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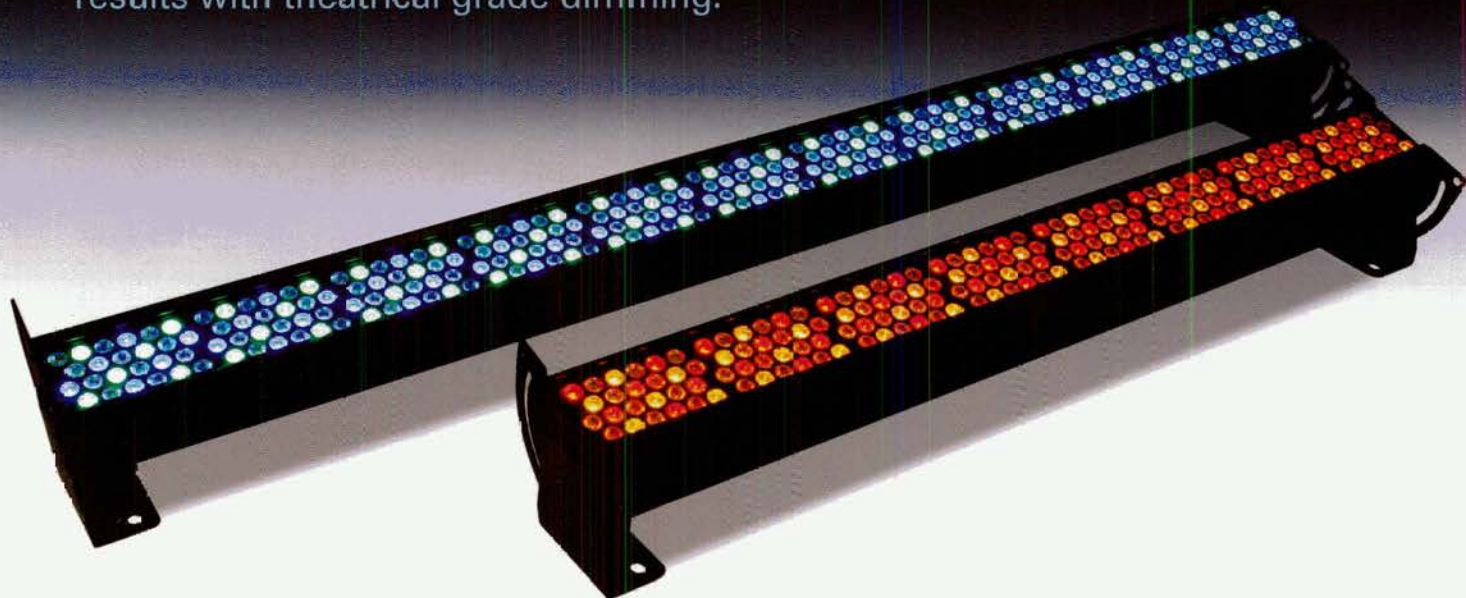
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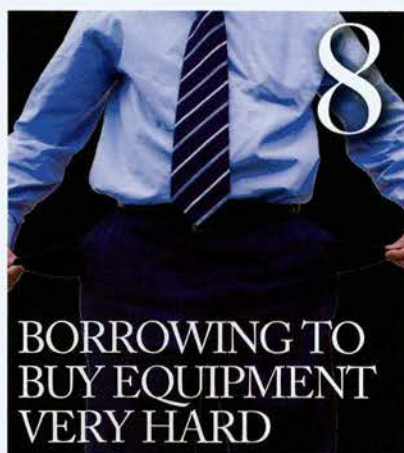
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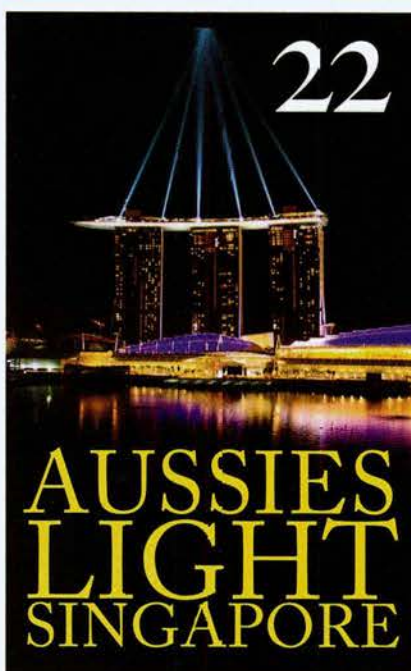
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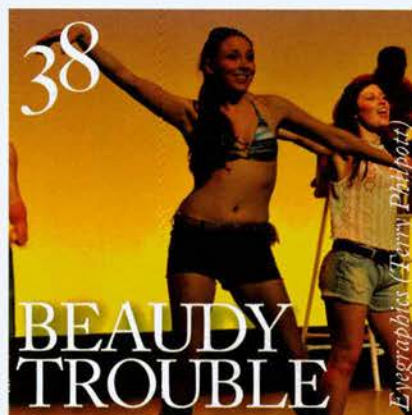
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Mail: Locked Bag 30, Epping
NSW 1710 Australia.

Call: 1-800-635 514

EMAIL: juliusmedia@me.com

Web www.juliusmedia.com

Publisher, Managing Editor: Julius Grafton

Editor: Andy Mackenzie

Staff Writer: James Den-Ouden

EMAIL: juliusmedia@me.com

call +61 2 9638-5955

Sales: Steve James

EMAIL: cxmag@me.com

direct +61 2 9638 5955

Newsagent distributor: NDD

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CUE03

Entertainment Training Resource

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

EDITORIAL

DANGER

Having observed production in China and Indonesia of late and spoken with many crew in general, I've concluded that a dangerous assumption has invaded the live production space.

Our news shocker about the South African Roadies Association and the white boycott they face at home reinforced my realisation that we just think we are great. By 'we', I mean the western world's technical fraternity.

We think we can do our shows better and no one else can do anywhere near as good a job.

When I spoke with Freddie Nythela about the apartheid situation where white production firms in South Africa point blank refuse to assist with training his people, I got angry. That righteous anger that bubbles up when people are unreasonable with other people.

I know the firms in South Africa, and I know they import technicians, mainly from England, and always white. I know that the guys and girls at SARA are barely trained, on rudimentary gear.

But for goodness sakes, South Africa has a multi tiered pay structure. The South African production owners could save money, and develop technical crew.

Instead they are guaranteeing that local production houses will emerge, with government support and protection. Those guys will have a lower cost base, and the whites will lose work.

Here forward I'm making it my business to encourage those white firms to engage with Nythela and assist him - lend him equipment, or invite his people onto their premises for training. Never say things about thieving and bashing or denigrate the blacks that seek to lift themselves up.

For our part, we are on exchange with SARA as they operate an accredited technical college just like we do. There is always some scepticism about new trainees, but what's happening in South Africa is a throwback to apartheid, and it just can't continue.

More broadly, if we assume that we are 'necessary' in developing countries, then we are very wrong. I've seen complex productions well executed by non English speaking crew.

Julius

WALKING IN

My neighbour came home from a gig at a well-known Sydney venue the other week, complaining that he'd paid good money to see one of his favourite bands only to have the whole experience soured by poor audio. Since I happened to know the house guy, I thought I might ask some questions.

Apparently the band brought their own guy - who was not unconvinced of his own importance, and was also not real interested in taking advantage of the house guy's local knowledge. He pushed the system too hard in all the wrong places, and the results were about what you'd expect.

It's a story I've heard before, with minor variations - I've even been the house guy in a couple of versions. Fair enough, the touring guys need to be given credit for mixing the band every night and knowing what they want, but what about some credit for the house guys who mix in the same room every night and know all its little idiosyncracies?

Poor audio is never acceptable, and is even less so when it results from arrogance and infighting. Come on people, just work together.

PARTY TIME

By the time you read this, the hangovers from the CX 20th bash should have faded. This is as good an opportunity as any to thank the people who helped us out.

Chameleon Touring Systems and Lots of Watts are long time supporters of Juliusmedia and supplied the lion's share of the gear. Their massive contribution is, as always, enormously appreciated. Lightfoot Sound came on board with staging and monitors. Newly appointed Tannoy distributor APG provided the PA, with some additional amplification from Hills SVL. Les Bishop from Digital Space Media continued to provide support on the TV production front, and Butlers supplied barriers.

And a big thanks needs to go to our volunteer crew - the students of Julius Events College who worked like slaves to bring it all together.

Andy

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CXNEWS

DEVICES, PEOPLE AND CONCEPTS

BORROWING TO BUY EQUIPMENT VERY HARD



Parallel with previous credit squeezes as banks break promises

National Australia Bank boss Michael Ullmer recently revealed Australian banks have reduced business borrowing since the GFC. Many business owners tell CX their banks have abandoned them, often without cause or warning.

"At the start of this year out of the blue ANZ wanted an extra \$30k security and we got 30 days to come up with it", a business owner (who prefers not to be named) told CX.

One firm stayed loyal to the Commonwealth Bank for twenty years and then had accounts frozen after they sold property, with the bank suddenly claiming some funds as extra security. "They don't talk to us anymore, just send emails. I can't organize any finance with them now, as we are suddenly regarded as too risky".

NAB said in the financial press during August that that pre GFC banks loaned half to business and half as home loans. Now for every \$100 of home loans, they only lend \$60 to businesses – a 40%

reduction in activity.

When banks acquired other banks, they shut branches. As internet banking built, they shut branches. Short term this boosted profit as the costs were removed while the turnover remained. Eventually customers started to shift to convenient banks and the trend was reversed. Now they are opening branches and promoting local managers.

"We had finance in place to buy a line array and at the last minute the bank demanded 20% cash be put on deposit", said another business owner. "I said just lend me 80%, I'll pay less payments, but they wouldn't hear of it". In this case he named the ANZ bank.

"I was told it would cost \$2,000 to apply for extra finance, they would revalue properties but that they would then consider it", another said, naming NAB. But NAB got a good report from a very large production house with a long track
continued on page 10 ➤



GERRY GEORGETTIS WAS RIPPED OFF

Sorry postscript to terrible tale of Australian crew legend lost

Early 2006 the global crew community reeled from the tragic loss of Gerry Georgettis, a stalwart Australian road pioneer who made good as tour manager to Bon Jovi. After settling in Miami, he took his own life after a nasty fracas.

"A man, apparently angered by the deal he got, plowed the SUV through a north Miami-Dade showroom and set it on fire" screamed the headline in the Miami Herald.

Gerry's mates gathered in Melbourne for the funeral, and were blown out but understanding of the former Cold Chisel sound guy's eruption over what was plainly a very bad deal.

Now years later, CX has had confirmation from a whistleblower within the Ford dealership that they do run things a little 'hot'.

"My comments are quite tardy, but my story is to offer some peace of mind to those that lost a friend, and can't come to terms with how, why it happened", says our informant.

"I can only share some things I observed as an employee for four months at Metro Ford in 2009. 'Best Practices' are qualities a customer and an employee can inquire about, previous to entering a contract or signing on for work. 'Buyer Beware' has been around for a long time. Shame on us. He was not from here, and was probably clueless to our laws; that South Florida
continued on page 10 ➤

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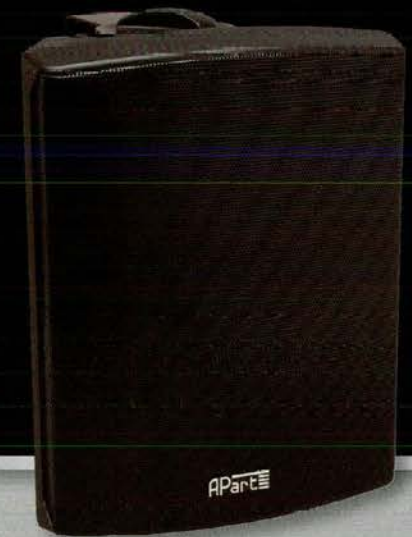
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Banks...Continued from page 8

record. "We treat them as a partner, \$2.5 million in acquisitions this year", he said.

All banks have featured poorly in a poll conducted by CX, which seems to indicate an industry wide reluctance to lend for niche businesses, which include entertainment and audio visual suppliers. Our experience is limited to Commonwealth, NAB, St George and ANZ. All but ANZ have provided us poor service, yet ANZ feature in our poll.

Commonwealth even managed to take an additional \$6,000 from a CX property settlement and when challenged said 'oops, mistake'. This came after refusing to provide a settlement figure until 24 hours before the actual settlement. How many people actually check this, with lawyers in the middle of most property sales?

Although not strictly a bank, Diners Club is owned by Citibank. Diners currently hold the CX all-time-bad award for poor customer service after we closed our account. Trying to trace a refund payment of more than \$2,000 allegedly sent to the closed facility has provide impossible – at least between May 2010 and presstime; with calls to Diners leading nowhere and letters, including registered mail, un-answered.

But it's not all bad.

"When we first set up EventSound in 2006 we approached both NAB and Westpac who had our home loan", says Keith Clarkson

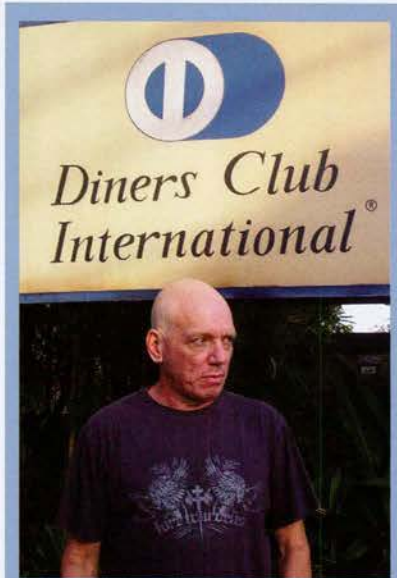
"Westpac insisted we open a business bank account with them immediately before they would even quote us for any finance, then offered an inflexible commercial lease or hire purchase scheme with fixed rates and fixed payment terms with heavy penalties for early payment. Westpac gave no clear indication of how long the whole process could take."

"NAB business banking were excellent, we met with a dedicated business banking manager, they offered us a loan to our terms within 24 hours and also assisted with scheduled interest only payments for the first 3 years pending all the paperwork being approved and us moving our mortgage to them as well. The Business Loan was sorted out within 2 weeks and the mortgage shortly after NAB intervention when Westpac dug their heels in on the mortgage release paperwork."

Don't think non mainstream lenders are lifting their game ... CX has had a very silly episode with Citibank's Diners Club subsidiary which consistently failed to act to trace a \$2,000 transaction leading to legal action against United Airlines – which CX won. Transpires Citibank are the lead bankers to United, yet they

let their client face court and eventually pay CX over a lost refund, allegedly lost within the Diners system.

It appears there is no end to the credit squeeze, which last happened in 1990 – 1992 and before that in the early 1980's. Bring back easy money.



Different directions – faded Diners, jaded Grafton.

WHAT CAN YOU DO?

- Open a second facility, with another bank
- Remain logical and never be emotional
- If angry make sure you have documented evidence
- Incorporate a second company to trade part of your business
- Avoid signing floating charges over all business assets
- Be wary of 'deeds' preventing using another bank
- Don't let the bank keep your Articles of Association
- Investigate funding before planning expansion
- Agree early with spouse never to mortgage home against business
- Learn to do more with less
- Use credit card finance to grow business. (Expensive but not secured)
- Ask distributors for vendor finance
- Form joint ventures
- Cross hire from overseas to prove viability
- Actually listen to your accountant before deciding anything big!
- When short of money pay all the little guys first
- Always, always pay wages on time
- Never, ever rip off contractors
- Ask the tax office for time to pay
- Find mentors. It helps to talk. Really, it does!

CX

Gerry Georgettis...Continued from page 8

subscribes to selling at 'whatever the market will bear', that written documents hold up in court, and verbal agreements are useless. A bare faced lie is nothing, if the written contract does not specify it."

"I was seeking employment, knew it was a "bad house", I just had no idea how bad it was".

"I don't subscribe to his methods (although I can laugh about it, knowing now the type of business they do), and I do not judge his actions in the dealership, save exposing innocent customers to his wrath. Fortunately, that part worked out; people were surprised, not maimed or killed".

"As for the flight, I am clueless".

Gerry took his life on a United flight back to Australia.

"Perhaps the dealership incident haunted him. My guess, he was pushed too hard, and snapped. We all have a breaking point. Forgive, and remember the good".

** CX understands the Ford dealership will pursue legal remedies upon publication of this story. We reserve the right to protect the identity of the former dealership employee quoted above.*

EMPLOYERS SAY YES, CREW SAY SOMETIMES

New Award pay for some but clients pay more

Most production suppliers, crewing agencies and venues tell CX that they are paying the new minimum hourly rates specified in the Live Performance Award 2010. But some crew say they are on the same rate as prior to July 1st this year, when the minimums became law.

Two crew contacted CX to report that Fair Work Australia appears overloaded with complaints from all industries, but that they had lodged complaints against their casual employers.

Live production technical supply has never been as competitive, with hundreds of firms competing for festivals, corporate gigs, events, concerts and theatre hires. New penalty rates that include double time for all Sunday work (except 'on tour') now make Sunday shows prohibitively expensive.

CX advises all crew, including contractors, to keep careful records of hours worked and payments received. One production supplier told CX that her crew, as contractors, would not get the new award. In all cases, anyone paid less than the award should report the employer to Fair Work Australia, and follow up the complaint.

The majority of employers support CX in promoting awareness of the new award, so that all employers are on a level playing field.

As always, CX invites comment.

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MUSICLINK BRACES AS RETAILERS REJECT ALLANS MERGER

Trouble in music equipment retail as deflation rages

Allans Music Group has merged its business with the Australian Music Group, including Billy Hyde Music retail and the wholesaler Musiclink.

"We will work progressively as one business with one chain of stores. The stores are not all the same, with different sizes, category/specialisation and brand focus and for the immediate future we expect this to continue to be reflected in individual store ranges. The merger will bring together two of the most distinguished, long established and recognizable music retail brands in Australia – Allans Music and Billy Hyde Music, creating a national network of 30 stores", the group said.

At the retail side, the Music Equipment Industry is struggling with deflation as prices lower. The Allans and Hyde group will employ over 580 people.

John Helme (formerly Allans Music CEO) is CEO for the merged Group.

AMG's wholesale businesses Musiclink represents some of the most recognizable brands in music including Mackie, Zildjian, Pearl, D'Addario, Korg, Line 6, Ludwig, DW, Remo, and dozens more.

Retailer clients of Musiclink reacted badly to the merger.

"We were wary before, competing against Billy Hyde. This just gets worse", said one who refused to be named, fearing retribution.

"Musiclink have always taken a lot of time to spell out that Hyde stores paid the same as us, but I never believed them. This means I'll promote brands from other wholesalers", said another. CX

BEHRINGER RESTRUCTURE SAVES \$1M



Warehouse closed, staff made redundant in Australia

Closing their warehouse and retrenching three of six staff will save music and audio manufacturer Behringer over \$1m this year. The firm now distributes its products direct from the factory in China to one of five outlets across Australia, from which its 384 reseller clients can buy.

"Some of them would order one microphone and expect it the next day. They were paying more in freight than they made on the product", said Chris Mann at Behringer Australia. "I don't want to sound arrogant, but that level of business is not worthwhile".

"We are still here with full warranty and product support."

The move was rolled out worldwide, with large savings leading to a unique alignment of retail prices against the American retail price, in all territories.

Behringer say that resellers in Australia will now thus pay less than they did, in order to deliver a lower retail price that matches the American retail price. The tradeoff is a lower return to the retailer, in exchange for a better price for the customer.

Australian outlets for Behringer include four master resellers, who each order direct from the factory in container loads. They are CC's Light & Sound, Cranbourne Music, Kosmic Sound and Store DJ.

One wholesaler will also offer Behringer at the same price as the resellers, this is a new importer called Galactic Music that is associated with Kosmic Sound in Perth. Galactic are understood to have other brands on offer.

Behringer have also banned Ebay sales from any of its outlets. "As web sales continue to become a greater part of business, we recognise the need to officially prohibit sales of Behringer and Bugera product on eBay, or any other auction or third-party website.

"Stores can sell on their own websites.

We can do this because we own our brand and intellectual property", says Chris Mann. Presumably this means any retailer putting Behringer products on Ebay is in breach of the terms of the use of the Behringer name. This would produce an interesting legal case, but it is unlikely any Australian retailer will take on Behringer.

"This is all part of Mr. Behringer's world domination strategy", concluded Chris Mann. CX



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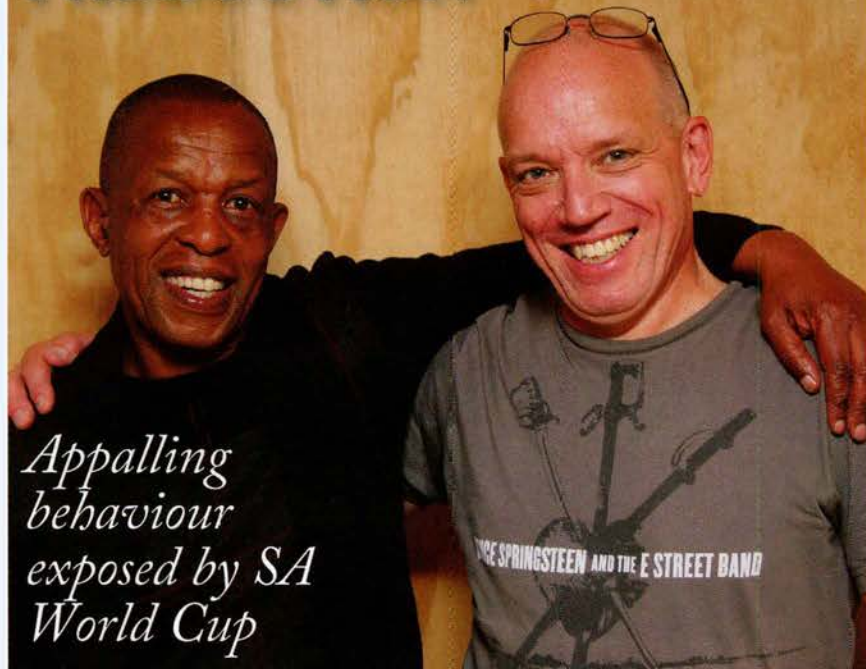
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APARTHEID LIVES ON IN PRODUCTION



South Africa's live production industry has been quietly practicing apartheid decades after it was abolished, with white owned firms refusing to assist in training of blacks.

Facing a labour shortage during the World Cup over winter, the white firms were forced to hire labour from the South African Roadies Association for the first time. But not before an events company contracted for the opening and closing ceremonies attempted to renege on a training support deal with SARA.

The closing ceremony for the Cup was threatened with a closedown when SARA president Freddie Nyathela pulled his 140 crew off rehearsals to hear that a commitment to supply SARA's accredited training college with two Digico SD8 consoles had not been honoured.

Part of the event firm's contract with the organisers required a legacy for locals, and the pair of Digico consoles for SARA had been agreed.

CX has learned that the commitment, worth over A\$80,000 was honoured under threat that crew would be removed from the ceremony. But this is not a new problem in South Africa, it transpires.

Freddie Nyathela visited Julius college to enlist exchange support for his similarly accredited college in Johannesburg. The contrast between the colleges was staggering – at Julius all production equipment is loaned or sponsored. At SARA nothing is loaned or sponsored.

South African production firms, run by whites, do not allow crew to lecture

at SARA, even for payment. White promoters actively obstruct visiting international crew from communicating with black SARA members at shows. "Lionel Ritchie's production manager was stopped by the promoter from helping members learn more", Nyathela alleges.

Nyathela is forced to beg for funds to purchase modest training equipment. The EV importer sold him a speaker system, and then failed to abide by a commitment to send experts to the college to train his trainers.

Now SARA has attracted high level government support in SA, with Nyathela chairing an industry training advisory committee, and the President acknowledging SARA's role. Recently SARA was the only non-government body invited to a conference in Mexico.

"It's been a long time. I cry inside sometimes, because I get support outside my country but not from the white firms inside", Nyathela said. He has been forced to send his graduates overseas for work experience – SARA members have worked in Europe and the USA, but can't get work around the corner from SARA's institute.

Nyathela's visit to Julius college was sponsored by Quest, the Australian distributors of loudspeakers. Quest are arranging exchange experience for SARA graduates within Australian production firms and venues. SARA is also being supported by Western Australian Academy of Performing Arts.

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The ASL Pro Series offers comprehensive and highly flexible systems solutions for full duplex, party-line communications. The Pro Series can accommodate multiple channels, large user station counts, and both wired and wireless user stations. Extensive configurations are available, and all interconnections are based on standard balanced microphone cable making installation easy. Clear layout of controls makes operation essentially foolproof, even in under time pressures and in low light environments. Exceptional build quality and careful quality control assure reliable performance for many years.

MASTER STATIONS



PS 6379 6-channel Master Station with Loudspeaker

SPEAKER STATIONS BELTPACKS & HEADSETS

PS 279/19M
1-channel
Beltpack



HS-1/D Lightweight
Headset



PS 4379 4-channel
Speaker Station



POWER SUPPLIES AND INTERFACES



PS 680 6-channel Power Supply



PS 150 1-channel Telephone Interface

Flexible System Solutions

The Low-Down!

Pro Series Master Stations are available in rack mount and tabletop configurations, and each has its own built-in power supply. Available models provide two channels (PS 279), four channels (PS 4379) or six channels (PS 6379) of communication. The PS 6379 6-channel Master Station with Loudspeaker is fitted with an electret 'noise cancelling' gooseneck microphone and loudspeaker. Also available is an "RM" version that replaces the gooseneck microphone with a small, built-in electret mic.

Features

- + Latching or momentary function on talk buttons
- + User stations with 1, 2, 4 or 6 channels
- + Separate CALL and TALK functions each with large LED indicators
- + Unique visual and audible call system with volume trimmers
- + Remote mic mute & audible call (buzzer) mute
- + Accepts dynamic or electret microphones (phantom power standard)
- + Extended frequency response and proprietary frequency correction for high intelligibility
- + Individual side tone and buzzer volume trimmers for each user station
- + Optional binaural headset operation on multi-channel stations

Applications

The ASL Pro Series intercom system is perfect for houses of worship, schools, theatres and performance venues, live events, outside broadcast, studios, and sporting venues, in fact anywhere that requires reliable voice communications.

For more info

For more information on the ASL range contact Madison directly on 1800 00 77 80 or email asl@madisontech.com.au

Mix and Match to suit your Needs

Speaker Stations

ASL Pro Series Speaker Stations provide reliable, easy-to-use communication facilities for applications requiring one, two, four, or six intercom channels. Each is fitted with an internal loudspeaker and an electret 'noise cancelling' gooseneck microphone. (Models with the suffix "RM" are identical except the gooseneck microphone is replaced with a small electret microphone built into the front panel.) Speaker stations are powered by Pro Series Master Stations or Power Supplies via the intercom party line. A rack-mount kit, available for each model, enables mounting of the angled tabletop cabinet in a 2U 19" rack space.

Features

- + Accepts dynamic or electret microphones as standard. Mic gain for gooseneck or headset mics is adjustable internally
- + Talk and call functions
- + Mic mute (through PSU or Master Station)
- + Buzzer mute (through PSU or Master Station)
- + Volume control for each channel

Beltpacks

The ASL Pro Series offers six beltpack options, with three each in ABS or metal cases. All are powered via the intercom party line by a Master Speaker Station or Power Supply. Also, all six feature a sprung metal belt clip.

Headsets

ASL also offer a range of headsets, including light weight double or single muff with dynamic microphone, or double muff closed style headset with noise cancelling electret microphone. All headsets are fitted with cable and XLR-4 connectors.

Seamless Compatibility

Power Supplies

Pro Series Power Supplies are designed to provide the required DC voltage needed to power Pro Series Beltpacks or Speaker Stations. Three different Power Supply models are offered to fit the needs of various intercom system configurations with either two or six channels. All are housed in rugged, 1U rackmount frames.

Features

- + Capacity allows use with up to 40 beltpacks and 20 speaker stations
- + Global mic and buzzer mute switches
- + AUX inputs - mic or line level
- + System link
- + DC input

Interfaces

The ASL Pro Series offers three interfaces to afford maximum flexibility in system configuration, and also to maintain seamless compatibility with existing communication and auxiliary systems.

Three modes are available to switch between send and receive, selectable on the front panel. The modes include PTT transmit mode enabled via an external switch. VOX transmit mode enabled by an audio detection circuit on the wired intercom. The VOX circuit includes a special frequency contouring circuit for the human voice, with adjustable attack and release times. CALL transmit mode is enabled by pushing any call button on connected intercom units. All audio present at the wired intercom will be broadcast into the wireless system. Buzzers of all connected stations are automatically disabled in this mode.

madison
audio visual

SENNHEISER ROUNDS OFF ITS SYSTEM



Sennheiser's flagship SKM 5200 handheld wireless microphone gets an update

Its characteristic antenna is a familiar sight on stage and in the TV studio: the SKM 5200 is the top-of-the-range microphone in audio specialist Sennheiser's wireless range. The handheld transmitter is now available in the new II version, which provides sound engineers with a switching bandwidth of up to 184 MHz while still offering the same excellent transmission reliability – ensuring that they can flexibly select frequencies and avoid interference.

A further highlight is the “Low Intermodulation” mode, which extends the number of usable channels within a given frequency range. The SKM 5200-II rounds off Sennheiser's II models.

The beginning of the year saw the launch of the SK 5212-II bodypack transmitter and the EM 3732-II receiver family. With their wide switching bandwidth, these models are ideal for international productions and multi-channel applications.

“The SKM 5200-II is currently the wireless microphone with the widest switching bandwidth available on the

market,” explained Astrid Vettin, Portfolio Development Manager at Sennheiser.

“The microphone offers optimum sound quality and maximum flexibility for every type of production, from concerts to TV reporting. On the RF side, the handheld transmitter features outstanding transmission reliability with its new switching bandwidth (extended from 36 MHz to more than 180 MHz), its switchable output power and its “Low Intermodulation” mode. On the audio side, we have the premium capsules from Sennheiser and Neumann, adjustable sensitivity from 40 to 0 dB and a switchable low-frequency filter.”

“LOW INTER-MODULATION” MODE

Like the SK 5212-II bodypack transmitter, the SKM 5200-II is equipped with a “Low Intermodulation” mode, which ensures even more reliable transmission in multi-channel applications. This mode reduces what is known as

transmitter intermodulation, which limits the number of usable channels and occurs whenever several transmitters are used in close proximity.

The “Low Intermodulation” mode enables the engineer to pack around 30 percent more channels than before into a given frequency band with an RF output power of 10mW. As a result, the available spectrum can be used more efficiently – or the sound engineer can simply benefit from the increased reliability that this mode offers. What's more, the wireless handheld transmitter can be operated in standard mode at 10mW, thus extending the operating time, or can transmit at 50mW to increase the range.

The SKM 5200-II handheld transmitter will be available from August in the colours black, nickel and steel blue and can be fitted with the familiar Sennheiser and Neumann capsules. The frequency ranges of the wireless microphone are 470 to 638 MHz (L-band), 614 to 798 MHz (N-band) and 776 to 866 MHz (P-band).

www.sennheiser.com.au



ALLEN & HEATH LAUNCHES FIRST iPhone APP FOR iLIVE

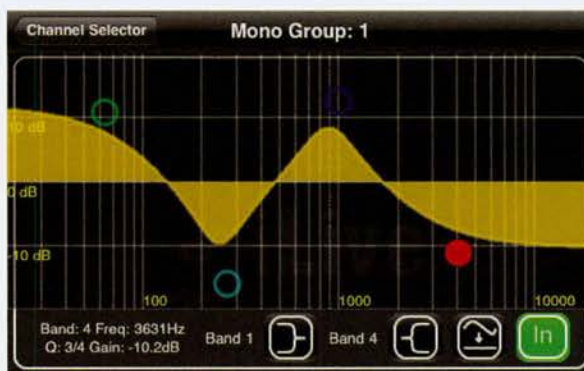
Allen & Heath has launched iLive Tweak, its first iPhone app, to provide real time mobile control of the iLive digital mixing range. The release adds yet another option to iLive's array of remote control possibilities, which includes laptops and touch tablets running iLive Editor control software, and the PL Series of controllers.

Available to download free of charge from the Apple store, iLive Tweak opens up new control possibilities for iPhone-using sound engineers, enabling them to remotely browse and select channels on their iLive MixRack, and adjust Levels

and Mutes, PEQ, GEQ and Delays.

iLive Tweak is compatible with iLive's latest software release, v1.7, and runs on the iPhone 3, 3G, 3GS and 4, as well as the new iPad.

“iLive's flexible architecture has enabled us to pioneer the use of remote control devices instead of the traditional control surface, and our first foray into iPhone apps is only the start,” explains A&H MD, Glenn Rogers. “iLive Tweak is the perfect tool for engineers to access all the key functions of



the iLive input and mix channels, and we plan to launch several more dynamic apps for other aspects of iLive control.”

To download iLive software v1.7 visit www.ilive-digital.com



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ZED-10



ZED-10FX

Allen & Heath's smallest mixers to date, the simple and ultra compact ZED-10 and ZED-10FX are built to a high professional standard and equipped for any situation, whether you're a solo artist, band, club, studio, school, house of worship, pro engineer, rental company, conference centre...

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IK Multimedia's AmpliTube X-GEAR software

ALLEN & HEATH

www.facebook.com/AllenHeathofficial

www.allen-heath.com/zed

SYNTEC EXPANDS TO ADDRESS THE INSTALLED SOUND MARKET

Syntec International has announced the creation of a new division to specifically address the installed sound markets across Australia & New Zealand. The new team will focus on Apart, K-array and the other existing product groups within the Sennheiser family.

This expansion means that Syntec will be able to focus new energies into the Installed Sound market whilst maintaining their efforts in the Professional Audio and MI areas.

David Bell, Manager of the Syntec Professional Division, heads up both teams.

Two new Account Managers have been appointed to the Installed Sound team: Mr. Sam Wood has been appointed in NSW and Mr. Paul Shephard has been appointed in Victoria. Gary Foster will support the Installed Sound team as Product Manager.

Syntec's more traditional markets, being the Pro Audio and MI markets will continue to be addressed by Peter Hall in NSW & NT, Jason Hawkins in Victoria, SA & Tasmania, Cliff Chandler in Queensland and Stan Johnson in WA. James Waldron has been appointed as Product Manager for Professional Products.

Cliff Chandler and Stan Johnson will also be responsible for the Installed Sound markets in their states and Jason Hawkins will be responsible for Installed Sound in South Australia and Tasmania.

www.syntec.com.au



TOA RELEASES NEW D-2000 SERIES DIGITAL MIXING SYSTEM



The D-2000 Series Digital Mixing system consists of the D-2008SP Digital Mixing Processor Unit, the D-2000AD1 Mic/Line Input Module, the D2000DA1 line output module, the D-2000CB CobraNet Interface Module and the D-2012C Remote Fader Control Unit. Also available for the D2000 system are the modules and fader unit from the current D901 series matrix mixer.

The TOA D-2000 Series Digital Mixer is designed to provide highly flexible mixing for small to medium-sized applications such as audio/visual presentation areas, corporate boardrooms, houses of worship, gymnasiums, function rooms etc. Up to four Processor Units and Remote Consoles can be connected to suit the actual size of the venue and provide a flexible solution. Each unit is controlled via a LAN, enabling decentralised installation. Additionally, customisation for a wide variety of applications is smoothly and easily effected, thanks to the eight available slots on each for input/output modules.

The D-2008SP is a rack-mountable unit, up to four of which can be connected to achieve a 128 inputs/output system. Essential signal processing functions include feedback suppression, auto-mixing, 32 preset memories and Ducker/NOM attenuation. When multiple D2008SPs are used in a decentralised system, audio is passed between the units via the D2000CB CobraNet module.

The TCA D-2012C Remote Fader Control Unit is equipped with 12 assignable motorised faders, 8 rotary encoders and is fully programmable and customisable. The D-2012AS Console Case is an accessory to the D-2012C that is designed to make it a desk-top type unit. The system is designed to provide highly flexible mixing capabilities for small to medium-sized applications.

As well as the dedicated D2012C Remote Console the D2008SP can also be controlled via an RS232 Interface or via a VCA module.

www.audioproducts.com.au



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SHURE ADDS TO SM MICROPHONE LINE

Shure have two new SM microphones: the SM27 and SM137.

The SM27 is a large-diaphragm, side-address cardioid condenser microphone designed to pick up the nuances of vocals and instruments with clarity. This microphone has a one-inch ultra-thin Mylar diaphragm for superior transient response, exceptional low frequency reproduction, and a low self-noise (just 9.5 dB SPL) to reveal fine detail when recording or during live performance. The SM27 offers lower self-noise and improved dynamic range specifications over the KSM27 model that it replaces.

The SM137 is a cardioid probe microphone for instrument recording applications. The SM137 employs an ultra-thin diaphragm for smooth high end and tight, controlled low end. Its 15 dB attenuator enables it to handle sound pressure levels as high as 154 dB SPL, for consistent reproduction of delicate acoustic as well as high-volume amplified instruments. The SM137 replaces the KSM1C9 model.

www.jands.com.au



MIKE CUTHBERTSON FOR NAS

Former Hillsong production manager Michael Cuthbertson has joined National Audio Systems.

"I am no longer officially on staff at Hillsong Church as their Production Manager. I will however continue to offer them key support as a volunteer within the production department", he says.

"Over the many years I've worked with Shane Bailey and the NAS team, a strong trust has developed in the way they have looked after Hillsong as a client. So for me it made perfect sense that we continue to work together in an effort to best support the audio industry here in Australia

Michael.Cuthbertson@NationalAudio.com.au



SOUNDWARP, NEXT GEN

With the passing of Bill Syrett, Soundwarp also died with him, and those studios and web have ceased operation.

Meredith Brooks is still doing Mastering, Editing, Compilations and Restoration under the new name "Farout! Productions". Phone: 0429 057 144 or email meredithbrooks03@gmail.com



FTSI - Our article last issue on FTSI didn't note that HME are the FTSI representatives in Australia.

www.harrismovement.com.au



Creating the Perfect Atmosphere



TOA BS-301

Designed for the café or restaurant where aesthetics are important, the TOA ES-301 blends into its surroundings, while delivering clear and even sound throughout the room. Modular satellite design gives you the freedom to easily set up the system the way you want. What is more, it won't cost you the earth.

FEATURES: Subwoofer
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System power handling
120 watts continuous program per channel (6 ohms)

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JBL LAUNCHES NEW PRX600 SERIES PORTABLE POWERED LOUDSPEAKERS



JBL Professional has introduced the PRX600 Series active portable loudspeakers. The new PRX600 Series comprises four full-range cabinets (PRX612M, PRX615M, PRX625, PRX635) and two subwoofers (PRX618S and PRX618S-XLF). At the core of the PRX line is a fully integrated DSP input section providing mic/line level input, selectable system EQ and a premium A/D converter for a maximum signal-to-noise ratio.

"We designed the PRX600 Series from the ground up to perform in the real world of sound reinforcement where challenging audio environments, high ambient noise levels and loud volumes are the norm," said Richard Ruse, Director of Marketing, Portable PA, JBL Professional.

In addition to Crown amplifiers, the PRX600 Series loudspeakers utilise new, ultra-low noise A/D converters that reduce idle noise and improve the overall

spectral balance and audio performance of the speakers. The entire line has been revoiced for better clarity and tone and, with the addition of a new, professionally discrete appearance and strategically located M-10 suspension points on the full-range cabinets, the PRX600 Series is ideal for installation in any commercial facility or house of worship. The new models are at least 15 percent lighter and 20 percent smaller than their predecessors. www.jands.com.au

CX



SCHOOL LIGHTING GRID SHOCK HORROR

CX saw the rig in the photo and a dance class of kids underneath near Sydney. Suffice to say we have written direct to the principal of the school and advised if it is not removed immediately, the floor under must be taped off and access closed.

In brief: steel pipes and joiners, flexing, plus lights totaling about 400kg hung off four steel ropes on two winches, no secondary points of attachment.

Remedy: proper truss, and four main static attachment lines. They can still use the dodgy hoists to lower the thing, rest of the time the winches become the secondary point of attachment. CX



ANOTHER DUMB STAGE COLLAPSE

Here's one from close to home. Eagle Farm Racecourse, Brisbane with too much water and not enough attention to detail.

"Not sure who's stage it was", says our source, "but suffice to say there's a couple of new-breed cheapo stage companies in town who think it's all about winching up the roof and coming back to get it when the gig is finished. This is one of the TWO stages they had on site that fell apart". CX

OH&S
AGONY
AUNT

With Julius Grafton...



SMART V DUMB

The number of stage collapse incidents appears to be growing. There hasn't been a disaster involving audience death in Australia – so far. But the trend is worrisome.

The before and after shots here show that no one was thinking. One 24 metre clear span roof with six legs and no guy wires or ballast, loaded with at least seven tonnes of gear. Of course it broke!

Here's the scoop: if you hang your gear off someone's roof and it breaks, the stage owner will probably sue YOU for breaking it. Not to mention the conga line of lawsuits if someone is hurt, or if the show is cancelled.



Chili Peppers in Adelaide was a prime example – the stage roof steel cracked, so the gig was relocated. Chugg Entertainment rightly went after the stage supplier for more than \$100,000 in costs.

EVEN DUMBER

When is a hose clamp a rated item of rigging hardware?

Well, never except in the minds of a corporate crew in Perth.

Above the dance floor were rigged three, large 2.7M diameter – steel candelabra that would weigh 30 or so kilos. One of the candelabra fell smashing from 3.6M or so on to the dance floor.

Right about when, had doors not been held, a couple of hundred revellers would have been boogying on down.

Would someone have been killed? Who knows? It's possible – although unlikely – that no one would even have been hurt. But the potential was certainly there.

So why did it fall? Did a piece of rigging fail? Did the secondary safety also fail?

Well, no. You see, the candelabra had a welded loop at the top, to rig from. So far, so good. The crew had passed a piece of wire rope through this loop. Also fair enough. But then they struck a problem – how to secure the end of the wire rope?

A rigger would say, "no problem, give me three wire rope clips of an appropriate diameter, ensure the saddle is on the load-bearing wire and that there is sufficient wire beyond the last, space them one clip apart and Bob's your uncle".

But there were no wire rope clips at hand.

So a hose clamp was procured. The hose clip was tightened – so far as is possible

– around the wires. And then – and this is probably what held the 30-odd-kilo candelabra in the air as long as it stayed

there – a generous wrapping of Gaffer tape was applied.

Sadly CX couldn't get independent verification of the venue and crew concerned, otherwise we would name them.



GOOD PRACTICE

Sydney's Butler's Hire do the math before they send a stage out. This puppy is rated for 52 m/s wind rating, and was recently deployed in the snow country. We can't be too careful in the entertainment business.

CX



The nature of the advice given here is general. Do not rely on this column, and do refer any questions you have to legal counsel before imposing any changes to your venue, job practices or workplace. This column is not legal advice, and should not be taken as such.

CDA Professional Audio



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Front-mount

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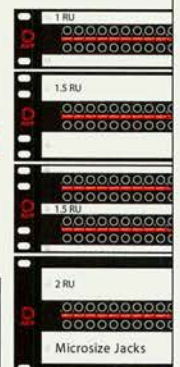
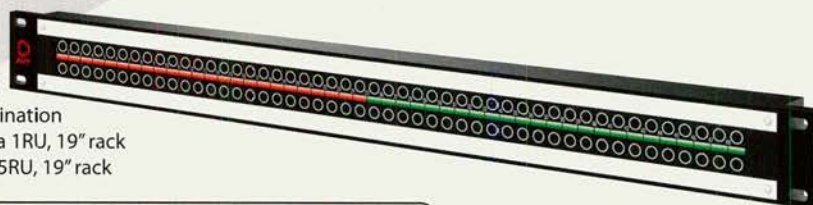
Allows 48 channels / 96 patchpoints in a 1RU, 19" rack

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AUSSIE LIGHTS IN THE SINGAPORE NIGHT



DESIGNING THE LIGHTING FOR THE GRAND OPENING OF MARINA BAY SANDS, SINGAPORE

By COLIN BALDWIN
& JULIUS GRAFTON

Laservision was recently engaged by the Las Vegas Sands Corporation to provide an opening event for their latest Mega Hotel and Casino in Singapore. Laservision looked to long time friend and colleague Colin Baldwin for inspiration and expertise in large-scale multimedia events. Colin Baldwin and his team of lighting professionals produced the headlining attraction at the opening of the US\$5.9 billion Marina Bay Sands Integrated Resort. Colin takes up the story...

When I first set sight on the magnificent Marina Bay Sands Resort in Singapore earlier this year, I gasped at the sheer scale of the project and the many interesting facets of each and every building structure. Reaching up into the sky the impressive Sands Hotel towers, each of the three towers with individual features, curved and straight sheer-walls reaching 200m – all this would be interesting to light, I thought. And floating on top – the jaw dropping Sands SkyPark occupying over 1.2 hectares of tropical oasis. This thing is big – big enough to park four and a half A380 Jumbo jets.

An 8 lane highway separates the Sands

Hotel from the Marina Bay waterfront buildings featuring Expo / MICE, Casino, countless shopping arcades, two world-class theatres and the inspirational Arts Science Museum, plus much more.

There were two main elements that I had to consider before completing the lighting design for Laservision's grand opening event. Firstly, I knew I had the benefit of utilising fast-tracked lighting and laser equipment that would form part of the permanent system, and the second element was Laservision's involvement in the re-design of some architectural lighting for several areas of the resort, which included the roofing over the Casino, MICE and theatres, the sheer

walls of the 3 hotel towers, the SkyPark underbelly and the Arts Science Museum.

For several weeks from mid-February 2010, we conducted numerous lighting tests with the difficult task of working around construction workers, scaffolding, cranes, trucks and hundreds of booms lifts. Each and every day we would return to a lighting test site to find the area taken over by building materials or our access route cut-off. Navigating the 57 floors to the SkyPark sometimes took up to 2 hours waiting for an elevator and when we were lucky enough to jump into one, you had to squeeze in with 30+ workers, until the lift warned "lift overload". Eventually the last few workers to get in were pushed out and then we were on our way.

Several suppliers were invited to demonstrate their product for the lighting tests, which included Hills SVL, Illumination Physics, ULA, with local support and labour being supported by the Showtec Group.

The vast concave roofing areas of the MICE, Casino & Theatres were to be treated with LED washlights. After testing some LED product, Laservision decided on the IP36 fixtures, which were installed on the MICE and Casino roofing just in time for the opening event.

For the 12 sheer walls of the Sands Hotel towers we tested A&O 1200w ARC CMY washlights. I suggested we try the latest 3w LED fixtures currently emerging from Europe, and after some resistance and comments like "you must be kidding, LED lights won't do the job" we tested the Robe CityScape Xtreme fixtures from ULA.

The Xtrems proved the best option, given their twin-blades of 94 Luxeon K2 LEDs, overall brightness and selection of lenses helped cope with the curves and height of the walls. I must admit I was a little apprehensive that LED wouldn't cut it, but they did. Con Biviano from ULA told me "Don't worry, they will eat it" and he was right.

Up-lighting the Sands SkyPark was a major challenge as this was the chief architect Moshe Safdie's favourite structure at MBS. His team of support architects advised us that the SkyPark reminded him of a ship travelling through the night. The existing lighting already installed by others did not do the SkyPark justice, so I suggested animated gobo effects to mimic water moving along the side of the SkyPark. The challenge was 'where to light from? Level 55, just below the SkyPark was way too close and level 4, at the opposing Casino building across the road was over 200m

away and on a very acute angle.

We set up 2 typical 1200w moving head spot fixtures at level 4 on the Casino building and proceeded to view the results from the other side of Marina Bay, about 800m away. We were amazed at the brightness and clarity of the gobo effects, even at that distance.

After testing a number of 1200w and 1500w moving head fixtures we locked into the DTS XR3000 spots and Tempest Domes to protect them from the extreme weather conditions. To stop light hitting the tops of the three hotel towers and annoying houseguests, Andrew Winslade from Hills SVL designed special Gobo slots so light output would be masked where required.

Additional LED lighting will be installed at level 55 to further realise the chief architect's dream of a ship floating atop of the three Sands Hotel towers.

At the beginning of June 2010 my team of Australian lighting technicians arrived in Singapore to start the bump-in. Equipment deployed for the opening event included 14 A&O Falcon 7k xenon searchlights, 18 Syncrolite 5k and 7k xenon searchlights, 14 DTS XR3000 moving head spots housed in Tempest domes, 36 CityScape Xtreme LED washlights and to light the vast roofing over the casino, theatres and expo centre - 998 Illumination Physics LED

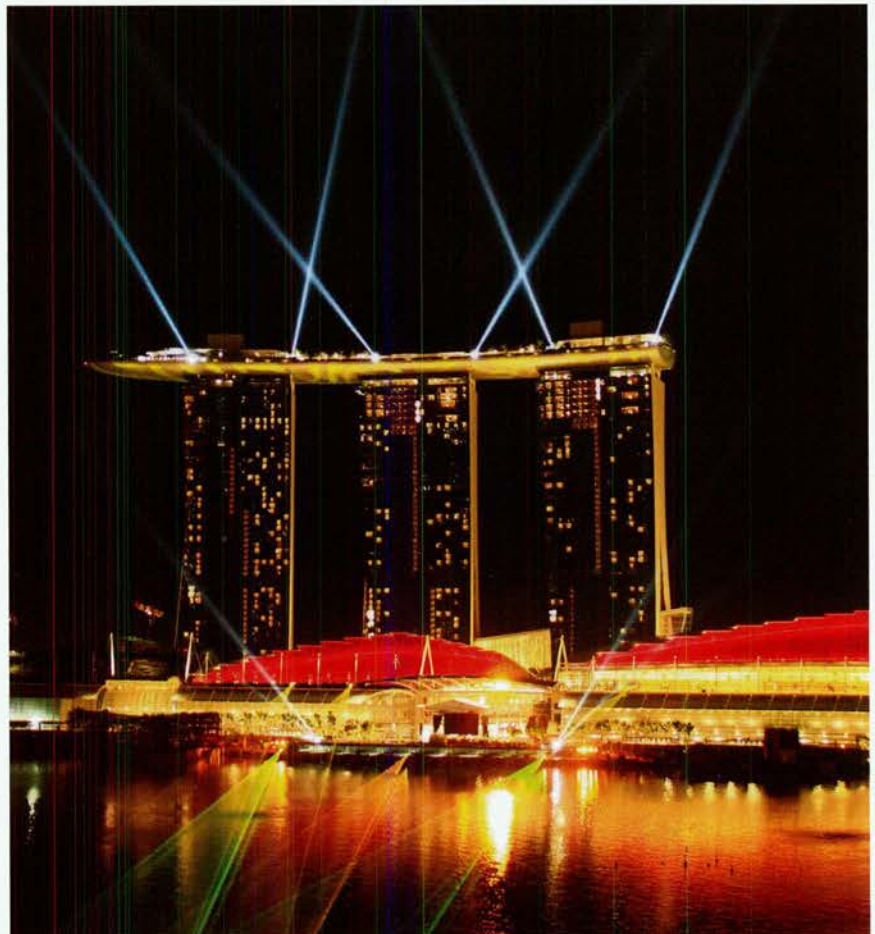
washlights were installed. Seven high powered optically pumped Laservision Stella Rays - lasers, totaling more than 300 watts - were deployed along the water's edge of Marina Bay.

All fixtures were programmed on a Grand MA2 console from a suite at the Fullerton Hotel directly across the bay. You can imagine my programmer, Ryan Marginson and I sipping Earl Grey tea in the afternoon.

Swedish designed Wireless Radio DMX transmitters and receivers were used to carry the 8 DMX universes 1km across Marina Bay to the resort. Local Singapore production company 'Showtec' were engaged to provide additional lighting equipment and crewing services.

I was very pleased with the outcome and proud of all my team. John Cashion, Pat Williams, Daryl "lasorman" Bowen, Regan Hammond & Glen Bielenberg had to endure an extraordinary and difficult undertaking working on what was mostly a construction site up until the Opening.

"Hats off to Colin Baldwin and his team for delivering a greater than expected show. An excellent world-class outcome," commented Paul McCloskey, CEO & founder of Laservision. "Front page coverage in all local news media was testament to its being the defining vision for this official opening."



THE TEAM

Grand Opening Project Director
COLIN BALDWIN
Event Manager
SHANNON BROOKS
Technical Production Manager
JOHN CASHION
Head Lighting Technician
PATRICK WILLIAMS
Grand MA Programmer
RYAN MARGINSON
Laser Technician
ROBERT McROSTIE
Lighting Technician / Laser Programmer
DARYL BOWEN
Lighting Technician
REGAN HAMMOND
Lighting Technician
GLEN BEILENBERG
Production Assistant
BIANCA HILL
Showtec Manager
CHOONY YIP 'WENG'
Showtec Lighting Technician
BOYD YEO THONG
Showtec Lighting Technician
TOH SAY KIAT
Showtec Lighting Technician
BERNARD LEE

LASERVISION SINGAPORE OFFICE

Project Administrator
COLLETTE GALEANO
Logistics Manager
JASON GALEANO
Project Manager / Permanent Show
BRETT STARKEY



The Team

THE EQUIPMENT

Sands SkyPark	Six - A&O Falcon 7k Xenon Searchlights
Arts, Science Museum	Fourteen - DTS XR3000 1200w Moving Heads Spots
Events Plaza	Five - A&O Falcon 7k Xenon Searchlights
	Four - A&O Falcon 7k Xenon Searchlights
	Eighteen 7k & 5k Syncrolites
Casino & MICE Roofing	Three - RGB & Four - Stella-Ray Laser Systems
	Nine Hundred & Ninety Eight - IP36 LED Washlights
Sands Hotel Tower Walls	Thirty Six - CityScape Xtreme LED Washlights
Show Control	Grand MA2 Full & Grand MA 2 Ultralite
	Eight - Wireless Radio DMX systems

Special thanks to Showtec Singapore for their technical support.

The NEW JFL210 Compact Line Array



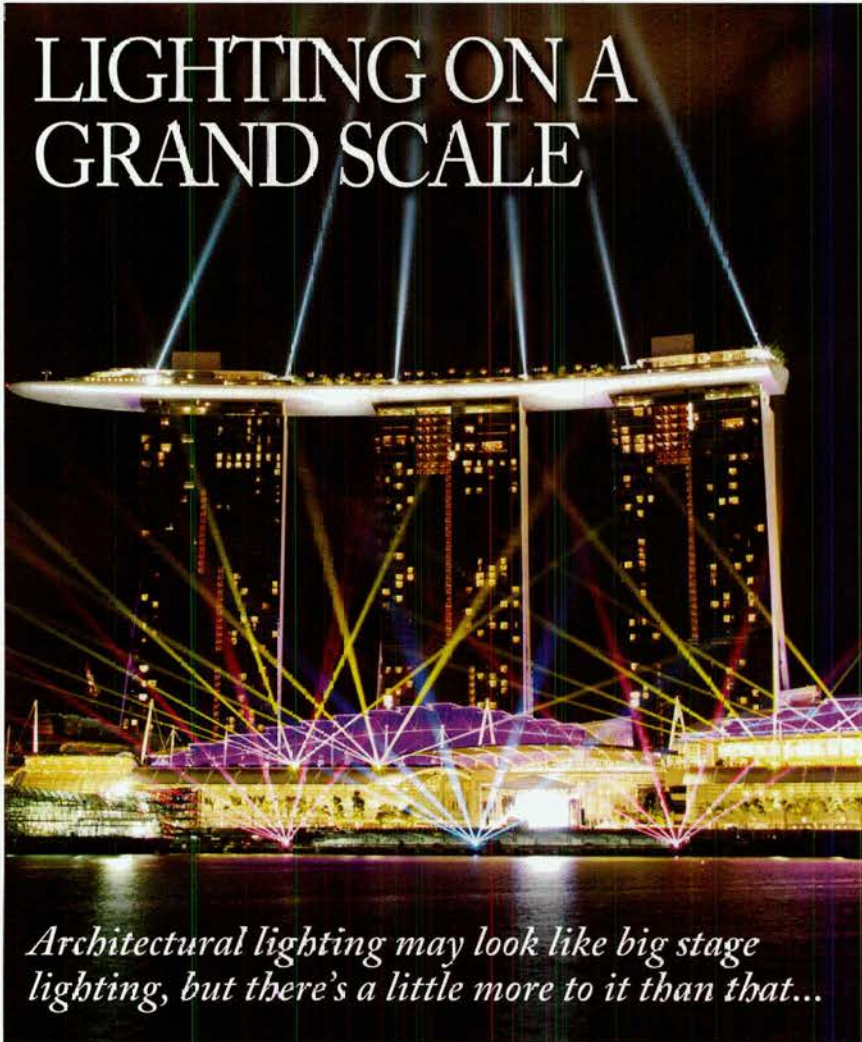
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LIGHTING ON A GRAND SCALE



Architectural lighting may look like big stage lighting, but there's a little more to it than that...

By **ANDY MACKENZIE**

Any fool can light a building up. Just point some lights at it - it's not like it's going to run away. Drive past a prison one night and see what a good job they've done. The tricky

bit is lighting it up so that it looks nice.

PHYSICS RULES

To a degree, lighting a building is like lighting a performer - the same fundamental laws apply, but there are

significant differences. For a start, we rely on the shadows we cast to give our subject shape - and buildings, especially modern ones, tend towards flat surfaces that don't cast shadows.

Then there's size. Buildings are big. Some of them are huge. So you need a lot of hardware and a lot of power to light them up.

MY HERO

The building needs to be the centrepiece. If it's about the lights, then you're doing it wrong. Look at the picture. There's lights everywhere, but there's no question that the building is the star of the show - everything is designed to work around the building.

Architectural structures provide such enormous potential for lighting - buildings, bridges, whatever - and it's a shame to waste that potential.

Don't just point lights at it, or off it for that matter. Think about how you can make the building shine. The glow of huge colour washes, the mystique of strange angles, the beams that capture the eye and draw it towards the subject - all these and more are the arsenal of the architectural designer.

Some of the tricks you'd use to light an actor or a stage still work, but others don't. As well as the design considerations, there are practicalities - how often can you effectively light a building from above?

Remember the basics - how does light work? How do we perceive it? How can I make this interesting to look at?

And remember that it's not about the lights, it's not about how clever you are, it's about the building. **CX**

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STAGING 'WHAT IF...'

What If I need to fly a performer from a point hoist or hauling line?

Over at Jands Staging this question arises more often than you would think. From a one-off in a theatre production to a flying angel in a wine tower at a fancy five star bar. How is it done, what is legal, what is safe?

As with any activity of this nature, the onus is on you, the operator, to assess the risks involved, and make a plan to eliminate or mitigate these risks. You must also document this risk assessment and your plans for dealing with the risks – the ubiquitous Hazard and Risk Analysis.

Let's assume for the moment that you have selected appropriate harness, shackles, karabiners etc. to do the job of safely attaching the performer to the machine that is doing the flying, you are then left with the risks associated with the machine that is doing the performer flying.

What are the risks associated with machines used for performer flying?

UNCONTROLLED DESCENT

Uncontrolled (free-fall) descents typically occur through a brake failure (in the case of motorised flying) or the operator

"letting go" (in the case of manual flying).

To guard against this type of risk, the performer must be fitted with a secondary fall-arrestor which is independent of the means of performer flying (machine or human being).

Typically this will take the form of a second rope and pulley (often referred to as a "manual"), attached to the flown performer and manned by one or more persons who can "catch" the performer in the event of a free-fall.

If you are flying the performer using a machine which is certified for performer flying, then you can dispense with the secondary fall arrestor mechanism, as such machines are designed in such a way as to allow you to ignore the risk of uncontrolled descent in your risk assessment process.

PERFORMER TRAPPED AT HEIGHT.

This risk needs to be considered for both machine and manually operated performer flying.

Hauling line ropes jumping sheaves and jamming is not uncommon, and powered hoists are designed to be fail-safe, that is, in the event of a failure in the machine, the machine will revert to the safest known condition – stopped.

When this happens while performer flying, the risk is that the performer may be suspended many metres in the air with no way of getting back down.

Before you fly a performer, you must have a rehearsed rescue plan in place.

Some machines are fitted with a manual descent mechanism – a hand

crank or similar, that will allow you to safely and slowly lower the performer to the stage if the machine just refuses to move.

If your machine does not have this feature fitted, then your rescue plan will necessitate having high access equipment (and the personnel to use this equipment) being readily available, such that you can get the stranded performer down in an appropriately short length of time.

What constitutes an appropriate length of time depends on the type of flying harness used and the time in which Suspension Trauma is likely to occur. This can be as short as 5 minutes (e.g. WA Code of Practice – Prevention of Falls, 2004, Section 20.1.1, Suspension Trauma).

• Next time, we'll look at using single wire load brake winches to fly battens.

This article forms general opinion only and must not be relied on without a detailed, professional risk assessment undertaken specific to your situation. Consult a professional staging company every time you consider anything that may involve risk with flown objects or people.

CX



Really dumb answer dept

In the learning tent, no question is dumb. But wow – some answers sure are!

Here at the Julius campus students enjoy or endure close proximity to the CX team. In fact the CX team enjoy being trainers as well as erudite writers. So it is with very great pleasure that we all gather in a room with a large table and a bottle of gin to mark exams. This is when many of our students shine like beacons.

And then there are the other ones – the answers you make up when you can't remember the real ones. We can almost predict the chaos before we read it, written in neat handwriting on sweat encrusted paper.

Here we detail some interesting answers to some questions. In some cases no technical knowledge is required to see the absurdity.

Being a lovely 18 year old with a great

smile and a winning personality is terrific, and it makes it easier to look them in the eye and say 'sorry dude / dudette, not yet competent. Let's go back into the classroom and work some more on this....'

What is the purpose of a DI?

To convert the audio waves to a single frequency, to have multiple inputs with less output cords. (Love this answer, but it overlooks the simplicity of a DI box which converts unbalanced signals to balanced).

Why is it incorrect to connect a signal processor between a microphone and a console input?

It would only slow the signal down. (Well, there might be a skerrick of truth in here somewhere, if the candidate was talking about digital latency. But no!)

How many lines are in PAL video, and what frequency?

About 20 lines per second, high frequency. (625 lines at 50Hz is the only possible answer!)

What does SDI stand for, and what is it?

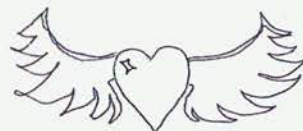
SDI stands for sound direct index, a box that converts sound into an image. (Of course Serial Digital Interface is the correct answer)

Describe what a distribution amplifier does and what it can be used for?

It distributes the correct frequencies and wavelengths among the equipment so it all compatible. (Very fair!)

More great answers on page 41 • • • • • ➔

F.



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HOT CARS, COOL MUSIC

Our hero discovers his rockabilly soul

"...So be a real cool cat be a rockabilly rebel like me" Matchbox, 1979.

By DUNCAN FRY

Every year there is a big car show up on the banks of the Murray at Albury/Wodonga. Called Chryslers on the Murray, it gets hundreds of Dodge, Plymouth, DeSoto and Valiant owners and their cars rolling up there, all polished to within an inch of their lives.

It usually clashes with the Frankfurt Pro Light and Sound show, but this year it didn't, so I decided to take the Big Bird (1970 Plymouth Roadrunner Superbird) up there. It's a bit of a thirsty machine, what with having an 8 litre V8, so I had it serviced and tuned before the trip.

The mechanic called me and said "Mate, it's running as lean as I can safely make it, but remember the engine's got the equivalent of eight 1 litre paint pots in there, and you've gotta put something in each one of them!"

Luckily I was able to negotiate a substantial bank loan to cover the cost of petrol, and after leaving the service station able to profitably close for the rest of the week, I fired up the 4 barrel and hurtled off to the Murray.

The show is a weekend-long car party, and like all parties, it has to have music. This year it was supplied by a four piece rockabilly band called appropriately enough No Brakes, and playing on the back of a truck while surrounded by millions of dollars worth of Chrysler's finest.

The band had the standard lineup of drums and Gretsch guitars, plus double bass, which had received a great Candy Apple Red paint job as well as a very sophisticated pickup and preamp system onboard. An absolutely necessary item, as anyone who's tried to pull a good sound out of a double bass with just a microphone will agree.

They were very good, but jeez I had forgotten how much I love rockabilly music. Boppy and jivey, it gets anyone's feet a-tappin'.

And if the name rockabilly means

absolutely nothing to you, then think of early Elvis Presley on Sun records (that'd be lean and hungry Elvis, as opposed to peanut butter chubster Elvis of later years) or the Stray Cats.

The sound of rockabilly is all about the feel. It's fat, warm, clean and with plenty of space. The bass guitar is very prominent in the mix, with low mids and highs boosted to do the job that drums would normally do in today's rock. And the vocals are always on top. Always.

When RCA bought Elvis' contract off Sam Phillips' Sun records in the 50s, for the then-unheard of price of \$30,000 I think, the first thing they did was try and re-record all his early rockabilly hits, to claw back some of that money***. But no matter how much they tried they couldn't get the right feel. Eventually they gave up and just re-released the early Sun recordings.

You can buy a CD of the complete Sun sessions now, but back in vinyl days I picked up a bootleg of them at a Sunday market. And at the end of 'Blue Moon of Kentucky' you can hear Sam Phillips say in his true Southern drawl "Pretty good,

boys -

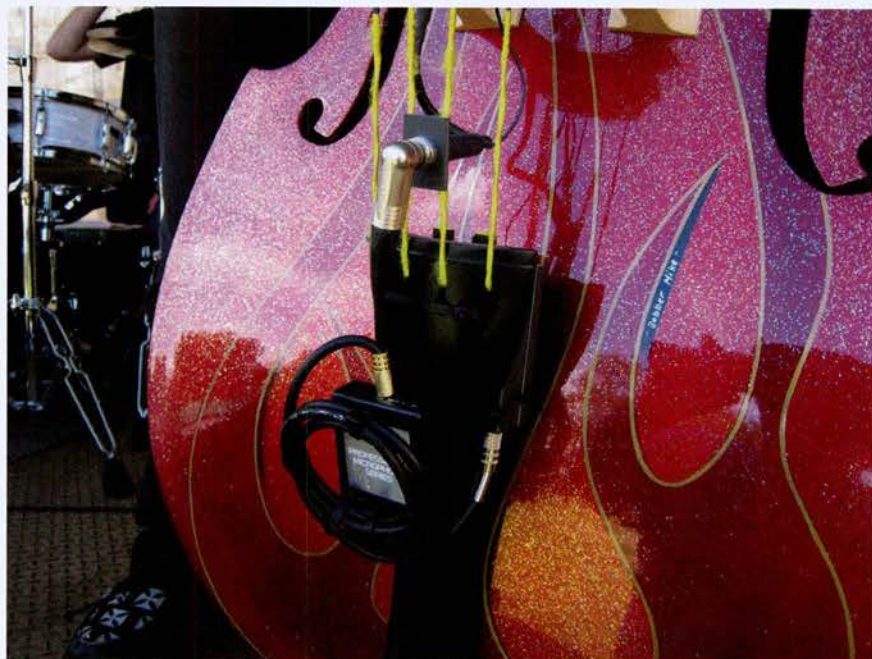
that's a real pop song now!"

The first time I worked for a rockabilly band, they gave me a stage layout when I picked up their stage gear, and said they would be at the gig as soon as they could for a sound check. So, I set up vocal mics in front of everyone, a mic on each amp, and one on each drum. Satisfied that I had done the right thing, I sat back and waited for the band.

The band arrived, looked over the set up, and then the drummer came over and said to me

"You've done the drums all wrong."

"What do you mean?" I asked. It was a small basic kit, and I had set the drum microphones up as I would normally: Kick, Snare, Hi Hat, Rack tom. What could be wrong with that?





"All I want is a mic on the snare, and an overhead," he said. "What, nothing on the kick drum?" I asked in amazement. "No, that gives it the wrong feel," he explained. "I want it heavy on the off beat, to keep it sounding jumpy. The overhead will pick up just enough of everything else to stop things sounding empty"

Muttering to myself, I changed the setup, thinking it's going to sound like shit and I'll get the blame.

Fortunately, when the gig started, it turned out that I was wrong and he was right. (Good to have this admission in writing, Dunk. Ed) The whole band had just the right feel; heavy on the off beat, with the drums and bass working together on opposite beats. Best of all, set up this way, the drums mixed themselves. A little bit of reverb, some slap delay on the vocals, and the gig was a cruise. The band was happy, and I got paid, proving that the first thing you learn about mixing is that you can always learn.

When we got back from the Chrysler show, my GF rang me one day and said - "Hey, you like rockabilly, don't you? Wanda Jackson's in town - let's go and see her". Wow - Wanda Jackson, the Queen of Rockabilly? One of Elvis' early girlfriends, and the very first girl rock singer? Naturally I said yes, although I was a little apprehensive when her website said she and her husband had become born again Christians in 1971 and since then had released several records of religious songs.

The gig was at the Corner Hotel in Richmond, a famous music pub in Melbourne, where even my old school chums the Rolling Stones have played. And the place was packed with punters ranging from the inner-urban tragically hip to jive bunnies in cowboy shirts and ducktail hair to oldsters like myself.

The support band was excellent, and also backed Wanda for her set. When she walked onstage and started to sing I was truly stunned. A voice that effortlessly slipped from sugar sweet to rasping and gravelly, she started with 'Mean Mean Man' and didn't stop for an hour and a half, ending with her timeless hit 'Let's Have a Party', the best song ever to come out of Oklahoma, and according to the net, the prime contender for Oklahoma's state anthem! It was a pretty damn good performance for someone who happily admits to being over 70!

Often these days I come away from shows unhappy with the sound of the performance, but not this one. It was expertly mixed on the standard Corner Hotel house system and I needn't have worried too much about the religious songs. She only sang one, the old spiritual 'I Saw The Light', and even I sang along with it!

***As they also did when they bought Paul Anka's massive hit 'Diana'. Check out the original version if you can, on Ampar label, released in Oz on Woggle and Goggle (W & G). CX

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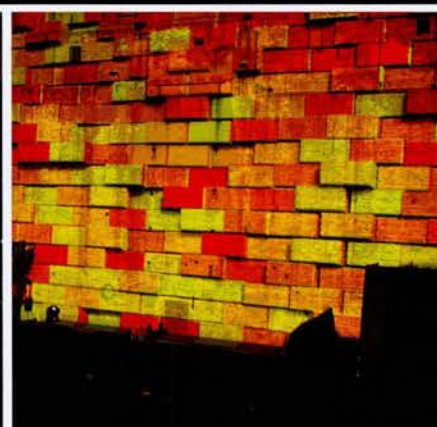
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 **SENNHEISER**





By JONO PERRY

After several late nights of meticulously scheduled bumping; the rain held out and 700 invited guests and members of the public gathered on the open air plaza of the Brisbane Powerhouse to witness the launch of the Brisbane Festival 2010 programme on Thursday 8 July.

Noel Staunton, the new Artistic Director of Brisbane Festival, had a vision to create a launch that would wow, excite and most of all put his stamp firmly on the Brisbane arts scene. Staunton, a former Technical Director from Opera Australia has a reputation for organising and managing some of the biggest entertainment projects and events in the country. The launch firmly placed his stamp on Brisbane and showed a taste of what's to come for Brisbane Festival in the future.

With a rationale to avoid the traditional launch speech approach, Noel's vision was to use short films and large-scale projection to promote his first Brisbane Festival programme.

First port of call was the combined creative and technical genius of Liquid Interactive and Liquid Animation, TDC and Traffic Film to make the "vision" a reality. The end result was a slick 30 minute presentation including dignitaries speeches projected onto the stunning backdrop of the exterior of Brisbane Powerhouse.

CONTENT AND PROJECTION

Liquid Interactive and Liquid Animation were the first players at the table. The key to this launch was amazing content and tasked with that brief was leading Brisbane based digital agency Liquid who have Disney, Queensland Theatre Company and Powderfinger among it's many clients. Liquid's Managing Director Michael Burke has a background in AV production and was determined to be part of the event at the highest possible

standard and as such pushed his team to great heights.

Michael Hassett, Managing Director of TDC, had incredible foresight and TDC's arrival in Brisbane in late 2008 has proven very timely. Michael and TDC are great supporters of the arts and Brisbane Festival is very grateful for their continuing support. Herbert Van Daaen, QLD Manager, was the next port of call to discuss the details of filling the 20m tall x 55m wide canvas. After some initial discussions and research TDC's solution was 6 x 20k HD Barco Projectors with wide angle lenses in 2 stacks to create one large blended image with a mountain of cabling and control equipment; Steve Cain was the Encore Operator and Projectionist. To add to the challenge, one of the key creative ideas was to project an image of the building onto itself. This led to a lot of careful photography during production and then many hours of line up and image manipulation onsite.

Traffic Film and Video Production were briefed to create 5 short films which could be PIP'd into the overall visual look created by Liquid. Traffic delivered with content in a short space of time. Brisbane Festival's Principal Partner Channel Nine added the talent for the voice overs and the films were ready to roll.

STAGING, AUDIO AND LIGHTING

As with any outdoor projection, waterproof scaffolding towers were required. The Moss family company, C & M Productions have supplied many staging, flooring and scaffolding solutions to Brisbane Festival over the years and they provided all the steel work. With subcontractor Northside Builders Hire they also supplied an aluminium scaffolding bridge used as a stage which appeared to float above the main entrance to the main Powerhouse building.

Gra Whitehouse, Ray Moss and the team from Norwest Productions filled the extra wide venue with a compact and

punchy Acoustic Technologies system supplemented with several RCF boxes that delivered dynamic audio to the audience from speeches, video and the disc tunes of DJ Ladyboy.

Lighting equipment was supplied through the generous support of Brian O'Connor and Rob Eastick from Chameleon Touring Systems who are a long time festival supporter. The Brisbane Festival technical team provided the labour and design; which was subtle to allow the projection to shine.

The key to success of any event is the generous support of the venue, suppliers and contractors. Every single person and supplier involved with the Brisbane Festival launch went above and beyond the call of duty to make it happen within a limited budget. Many of our suppliers will use the launch as a show reel for the future. Special mention to the Brisbane Powerhouse and the entire team at Brisbane Festival who delivered the event in style led by Paul Bearne, Technical Manager; Peta Winters, Technical Administrator and Domonique Wiseman, Producer.

CX



Jono Perry, Technical Director, Brisbane Festival.



By ANDY MACKENZIE

With campuses in regional NSW including Wagga Wagga and Bathurst, you'd expect that Charles Sturt University did rural stuff – agriculture, viticulture, vet science... and you'd be right. But that's not all they do – visiting the TV production facility at Wagga Wagga, CX found some excellent technical training going on.

For many years, TV and film production courses in universities have focused on the development of directors and creative types – essential, by all means, but in limited demand and with limited employment possibilities. The BA TV production course at CSU takes a slightly different approach, emphasising the technical skills required to make their graduates employable in the TV industry.

A slightly unconventional approach from a university, and one that has raised a few eyebrows amongst traditionalists. "I was at a conference with a lot of people from other unis a while ago and someone asked me 'What is this industry you keep

talking about?' Some people don't seem to understand..." laughs Pat Sproule, head of the Wagga Wagga TV program.

THE APPROACH

"Our students do a lot of creative work as well, but it's all underpinned with solid technique," Pat explains. As students progress through the course they produce a variety of creative projects, but there are a range of technique issues addressed in each one – for example, most projects are edited on Final Cut Pro or Avid Media Composer, but students are also required to learn linear editing and live switching (both studio and OB based) as well.

In the first year of the degree all students follow a broadly similar program with some minor variations in elective selection, but as time goes on they are encouraged to develop specialisations – so everyone does both camera pedestal work and audio, but some people come out as gun pedestal or audio operators while others are more at the '...can if I really need to...' kind of level.

INDUSTRY CONNECTIONS

CSU has solid connections all over the broadcast industry. Many of the academic staff, Pat included, have come out of the

industry to work on this program, rather than being career academics. This means that the connection to industry is much stronger, and more personal, than might otherwise be the case.

Pat tells me that his graduates have infiltrated the industry, and that it's a nice feeling when you get to see the names of your graduates roll at the end of something you've just watched. He has many friends still in the industry and says it's surprisingly common to find his former students at work when he drops in to visit mates.

There are also strong connections to suppliers in the industry – Vinten offer scholarships for pedestal operators as well as extensive support in the pedestals and tripods department. "Every year we have a competition to win a pedestal scholarship," Pat explains. "We build an obstacle course in the studio and they need to navigate the pedestal through it while holding a compelling shot – it's not easy, and it's great fun."

Another great relationship is with JVC, who supply the vast majority of the cameras for the program. "Dealing with JVC has been a pleasure – one of only a handful of companies to actively support education." A quick glance at the equipment lists for both the truck and the outside production kits reveals a whole



CSU students, JVC cameras and Vinten pedestals on OB duty.

lot of JVC cameras, with more likely to join them. "The pictures are fantastic, especially for the price, and they're robust enough to cope with being continuously used by students."

GETTING OUT THERE

Student projects include a range of different production approaches – in the early part of the course, lots of projects are based on single camera shoots for later editing, later projects involve multi-camera shoots both in the controlled environment of the studio and on OBs. A collaborative approach is common on the larger projects – it's not uncommon to find a 1st OB running with final year or post-grad students in senior positions, second year students on cameras, replay and CCU and first years in various non-critical support roles.

This interaction between students not only encourages a collegiate approach, it gets students into the right headspace for the industry – understanding seniority and chain of command through working with more experienced people.

CSU's HD OB truck – designed by Pat and fitted out with assistance from the students and staff – operates as a commercial proposition as well as a training environment. It doesn't make money really, just covers the costs, but it creates opportunities for students to be out working on real OBs, often with professional directors, rather than fabricated exercises.

REAL EDUCATION FOR A REAL INDUSTRY

By recognising that creative genius is a fine thing, but not necessarily one that will pay the bills, CSU have produced a program which arguably delivers the best of both worlds. Creativity is fostered and encouraged while students are also required to develop skills that are in demand in the real world of TV production.

So even those who don't wind up directing get jobs in the industry they want to be in – unlike several film graduates/short order cooks of my acquaintance...

WHO'S WHO?

The CSU TV team is small but effective, and consists of:
 Patrick Sproule, Lecturer / Course Coordinator
 Bruce Gater, Lecturer
 Matthew Olsen, Lecturer
 David Hawke, Technical Support Officer
 Andrew Harris, Technical support officer.

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WHAT'S IN THE TRUCK?

Vision switching in the OB truck.

The Truck

- 10 tonne single rear axle pantech
- 8m in length, 3.6m high
- Fully air-conditioned
- Internal seating for 9 crew (Dir, DA, VM, CG, CCU1, CCU2, Replay, Audio 1, Audio 2), additional standing room

Power:

- The truck requires 2 x 15amp single phase circuits, but normally operates from 2 x 6.5kva silenced (55 dba) portable generators which live in the back.

Cameras

- 6 x JVC GY-HD251E 1/3" 3CCD broadcast cameras with 7" JVC viewfinder, Fujinon 16x Zoom lens and full zoom/focus remote demand
- Optional Fujinon 22x with 2x range extender or Fujinon 18x Wide Angle
- Complex digital fibre-optic multicore system with full remote CCU, power, comms, return vision, audio and aux channel support.
- 6 x full JVC CCU remote control with HD monitoring & waveform monitoring, configured as two stations of 3 CCUs per operator
- 1 x JVC HM100E camera for fixed mounting

Camera Support

- 3 x Vinten Osprey portable studio pedestals
- 6 x Vinten ENG Tripod including Vision 20, 30 & 100 pan/tilt heads
- Flexible track dolly system

Vision control

- Snell & Wilcox 1ME Kahuna vision mixer, 20 inputs, Format Fusion (conversion & scaling) full still and motion store, 4 x keyers (including chroma key), basic DVE, macro and shot box, 4 x Aux output & "clean feed" capability for venue monitor sends etc.
- Compix LCG9000 single channel character generator
- Harris 12 input multiview, 42" LCD monitoring + split for audio monitoring
- Talia 16 x 16 HDSDI routing switcher
- Monitoring for replay system, CG & vision mixer GUI
- Hamlet Waveform and format monitoring including Waveform, Vector, Audio level and audio phase.

Recording/Replay

- Mac Pro based HDD recorder/payout facility, 6TB RAID on-board storage, multiple codec support including ProRes, Avid DNxHD, DVCPRO HD.

- Full Final Cut Studio 2 installed. Capable of recording while simultaneously editing same content in Final Cut Pro.
- AJA Ki-Pro HDD recorder with 2.5TB storage. Records in ProRes 422HQ Codec, .MOV or .AVI wrapper to removable-firewire 800 HDD bricks. This is a fast & convenient way to deliver the content to the hirer.
- Newtek '3 Play' 3 channel HDD slow motion replay system, including dedicated controller, highlights package creation and iso-record file export capability. Output is MPEG2 based.
- Fully 1000 Base T networked for file transfer convenience.

Audio

- Yamaha 02R V2 VCM 52 input console, including on board effects, gates & compressors
- Yamaha Ethersound Digital Multicore system
- Yamaha Monitoring
- 2 x Yamaha SB-168ES, 16 input, 8 output remote stage box /preamp with phantom power. Can be stacked to give 32 x 16 I/O and remotely configured as mic or line level.
- Steinberg Nuendo V5 Digital Audio Workstation (PC based) capable of recording up to 64 channels of discrete multi-track in 48k/24 bit. Usual configuration is to perform a live mix /sends on the console while simultaneously recording a full multi-track for later mixdown.
- CD & computer audio playback systems, including on-board SFX library and AMCOS Music library

Auxiliary Input / Output

- 2 x SDI / HDSDI auxiliary vision input, able to be converted from analogue composite, component and/or HDMI using various external converter devices.
- 2 x SDI / HDSDI auxiliary vision output, able to be converted to analogue composite, component and/or HDMI using various external converter devices.
- Multiple analogue/digital audio auxiliary input/output configurations available with up to 8 submixes/mix minus sends available

Communications

- Dual channel Clearcom party line system, usually configured as A channel Production Comms, B channel Venue Comms
- Able to be interfaced to most venue comms systems (Clearcom, Jands and other generic 3 wire systems)
- 4 wire interface, IFB and UHF handsets available as required
- 4 x wireless beltpack systems (FM/AFM/TD comms)



WHAT'S IN THE STUDIO?

Vision Control Room

- Vision Switcher – Snell & Wilcox Golden DAVE
- Monitor Wall – Barco Atlas driven by Barco Hydra
- Intercom – Trilogy Orator Digital matrix
- Routing Switcher – Talia
- CCU Station – Hitachi Z3000W cameras, Monitor & Waveform monitor
- Lighting console – ETC Smartfade ML
- Character Generator – Inscrber CG on IBM PC
- Sony BVE900 edit controller

Audio Control Room

- Yamaha DM2000 digital mixer
- Jackfield
- Intercom – Trilogy Orator Digital matrix
- Routing Switcher – Talia
- Multitrack Computer – Steinberg Nuendo on Mac Pro
- Various outboard equipment
- Audio & vision monitoring

Studio Floor

- Cameras – Hitachi Z3000W 16:9 widescreen ENG style cameras with studio build up kits
- Pedestals – 2 x Vinten Quattro, 2 x Vinten Fulmar
- Intercom – Trilogy Orator Digital matrix
- Routing Switcher – Talia
- Boom – Fischer
- Radio Talkback – BTS
- Audio & vision monitoring

Videotapes + Mainframe

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STRIKE!

By RICHARD CADENA

"A lot of words in English confuse the idea of life and electricity, like the word live wire." — Laurie Anderson

When I was a kid, my two older brothers were standing in the front door watching a massive electrical storm through the screen door. I was afraid to get too close to the doors or windows because of what sounded to me like earschplittenloudenboomers. Each bolt of lightning shook the house and rocked the neighborhood. They were both leaning against the door jam with their hands resting on the aluminum weather stripping when suddenly, a bolt of lightning struck the power line in the alley behind our house. Both brothers howled like wolves and nearly jumped out of their fur. The energy of the lightning strike enveloped the house and they got a good shock. As far as we know, it wasn't severe enough to cause any damage, but they were always a bit goofy so it's hard to tell.

Can that happen if you're standing on a metal catwalk and lightning strikes the building?

That was the question on the mind of a reader, "a sound technician with over 35 years of experience, but with limited electrical engineering knowledge," who wrote: "I have a contract to provide theatrical sound, stage lighting and video services at a university. Recently, the university allowed multiple cell phone companies to install equipment on the roof of the theatre. The cell phone tower equipment installed by one company includes a conduit from the roof to the stage area catwalks on the inside of the building. The conduit is bonded via a decent gauge wire to the exposed steel of the building. (The cell phone company) also installed a heavy wire from inside the same conduit to the exposed steel of the building. My concern is, what happens in the event of a lightning strike or other electrical issue from their equipment? The building's steel is exposed throughout the catwalk area above the

stage and the steel most likely is also connected to our double-purchase rigging system steel. Are we at risk for a shock in this situation? Does it matter if the heavy wire is for lightning suppression versus just a heavy earthing wire for their installation?"

You might want to turn off the television and think about this. After all, the voltage between clouds and the earth can reach as high as 10 MV to 1000 MV and the current from a lightning strike can range from a few thousand amps to 200 thousand amps. Get it right and standing on the catwalk during a thunderstorm is not likely to present a problem; get it wrong and it can ruin your whole day.

The short answer to his question is that it should be safe to stand on the catwalk during a thunderstorm because the cell phone tower is bonded to the building. The reason for bonding them is to do our best to make sure all of the metal in the building structure, the cell tower, and the electrical system remain at the same voltage potential regardless of what might happen. This is referred to as an equipotential grounding system. Otherwise a lightning strike or earth fault could create a difference in potential that could be very dangerous.

Depending on how tall the cell tower is and how often lightning occurs in the area, there may or may not be a lightning protection system on the building. If there is a lightning protection system then the antenna tower should be connected to the building through an equipotential bonding conductor. If there is not a lightning protection system then the antenna tower should have both an equipotential bonding conductor and a separate earth connection to an earthing electrode.

The general idea behind a lightning protection system is to provide a low impedance path for lightning discharges and keep it away from non-conductive parts of the building which would sustain more damage than does the low impedance path. Without it, the lightning discharge could potentially damage materials like concrete or brick,

start a fire, and/or electrocute anyone with the misfortune of touching two objects at different potentials.

There are four main parts in a lightning protection system: (1) a system of strike termination devices (called air terminals) on the roof and other elevated locations; (2) a system of earthing electrodes; (3) a system of conductors connecting the air terminals to the earthing electrodes; and (4) surge arrestors. The air terminals are mounted at the highest point on a building in intervals of no more than 20 feet. If it does its job right then the lightning protection conductors will be the preferred path for current due to lightning strikes and it will conduct it through the earthing electrodes and into the earth where it is dissipated.

Bonding the cell tower to the building steel is common practice for radio and television equipment. Masts and structures supporting antennas are typically bonded to the building to create an equipotential system and earthed to create a reliable 0V reference. In some places the building steel can be used as an earth electrode, provided it has a solid connection (meaning low impedance) to earth. Otherwise a driven rod, earthing plate, or earthing grid is used. AS/NZS 1768:2007 spells out specific requirements for lightning protection systems.

There should also be an earthing system which is separate from, but connected to the lightning protection system. Part of that system is the protective earth conductor, which serves as a return path for fault current and as part of the equipotential voltage system. Another very important part of the earthing system is the use of residual current devices, which detect leakage current and automatically opens the circuit.

With or without the protective systems, standing on the catwalk during a lightning discharge alone isn't enough to hurt you. Much like a bird sitting on an electrical power line that is conducting massive amounts of current, you will likely not be injured because there is no 0V reference relative to you. A high

voltage has no significance unless it is referenced to another voltage point. That's why you can't measure any voltage with one test lead; you can only measure voltage between two points. If, on the other hand, the bird were to straddle the power line and a grounded transmission tower it would be cooked because the tower is connected to the earth, making it a solid 0V reference. Now the high voltage has real meaning.

Ideally, the resistance of the grounding system or lightning protection system to the earth should be 0 ohms; however, in practice that just isn't possible because even the largest conductors have some resistance, even if it is small. So we do the best we can to make the resistance as low as possible.

Lightning protection systems should to be inspected every year including an earth resistance test. You can also perform a visual inspection of the grounding and bonding to ease your mind. Things to check for are loose or broken connections in the lightning protection system and the electrical earthing system. Check for corrosion or burned conductors. Pull on components to make sure they are well connected and tighten clamps and splices with a wrench. Check the surge arrestors to see if the indicator lights warn of a

failure.

Also, it used to be that electrical systems were earthed using water pipes. But today, many water pipe systems use non-conductive materials so it's important to make sure older systems are tested and upgraded by adding an earthing rod or other reliable electrode. Older construction with earthing rods should also be tested because driven rods have a limited life due to corrosion. Moisture, salt, and high temperatures contribute to the degradation of electrodes. The life expectancy of a driven rod or an earthing plate is only five to 10 years. A concrete encased electrode is expected to last 15 to 20 years while a building foundation electrode is expected to last 20 to 30 years. There are also specially engineered electrodes such as an advanced driven rod, which looks a bit like a masonry drill bit, and an electrolytic electrode, which is a hollow copper shaft filled with natural earth salts and desiccants to draw moisture from the air, forming an electrolytic solution that seeps into the soil and keeps it moist and conductive. The life expectancy of the advanced driven rod is 15 to 20 years and that of an electrolytic electrode is 30 to 50 years.

A formal inspection of the lightning protection system is more time

consuming and involves specialized test equipment. The 3-point test requires two auxiliary earthing rods to be driven into the ground. Voltage is then applied between the earthing electrode under test and the second earthing rod. An ammeter reads the current generated between them while a volt meter reads the voltage between the electrode under test and the third earthing rod. The result is the resistance in ohms between the earth electrode and the surrounding earth.

There are also earth resistance meters, such as the Fluke 1630 Earth Ground Clamp meter. It allows you to test the integrity of an earthing electrode by clamping the meter around the electrode or earthing conductor instead of using auxiliary stakes.

The main idea behind a lightning protection system is that we want to be able to control where the current from a lightning strike is flowing and it shouldn't be through you or anyone else. If the lightning protection system, electrical earthing system, and equipotential bonding conductors are all installed and working properly then more than likely you will have a long career, even if you spend all your time on the catwalk.

For a real tingle, email the author at radena@austin.rr.com.



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THEATRE TROUBLE...

Behind the “Worst Australian Musical” ever staged

*Beaudy Producer
Michael Orland
confesses to a dreadful
opening night.*

By MICHAEL ORLAND

Just before the Saturday evening show in week one of our musical, “Beaudy” (NIDA Parade Theatre Sydney July 8 – 24) I went to check on how my daughter Emma was doing at the merch table. A lovely little old lady approached and asked if she could buy a programme. And a T-shirt. And a CD. “You must be really looking forward to seeing the show”, I said.

“Oh, I’ve already seen it. I was here on Thursday for the premiere. I’ve come back to see it again.”

“Umm. That’s interesting. Thursday wasn’t such a great night...”

“Dear, there’s no need to tone it down. Thursday was a #ing disaster...”

By week 3, the backstage noticeboard at The Parade Theatre was crammed full of congratulatory letters and emails. Many from theatre industry notables. We have transferred some of these to Beaudy’s Facebook page for all to see. I am writing this article weeks later, and I have just had a phone call from a Director staging a major musical next month, who just had to call and tell me how much she enjoyed our show and how “in awe” she was of our achievement.

Yet this is the same show that drew the most scathing on-line reviews ever seen for an Australian Musical!

Our publicist strongly advised that we did NOT invite reviewers during the first week. But I was so confident after our previous week of rehearsals (consisting

mainly of repeatedly running the show start to finish) that I ignored her advice and insisted on inviting the world’s press. Mega mistake No 1.

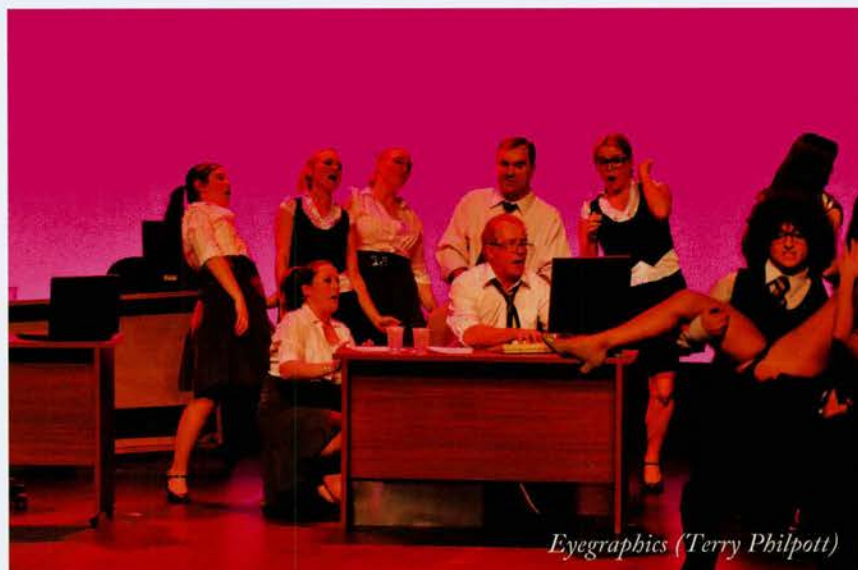
One reviewer said “if Basil Fawlty produced a show, it would look like this”. He was right. Michael Palin said that Fawlty Towers episodes all followed the same scenario of a man (Basil) falling into a hole, and then sinking deeper and deeper into that hole as he tried to dig his way out. I couldn’t think of a more appropriate way to describe our premiere. And by its nature, CX magazine is about the only forum where an explanation would be understood.

A week before we opened, my son’s computer monitor fritzed, and he borrowed one of my show laptops to complete his end of term school assignment.

Anyone who has hired my audio services over the last five years will be familiar with the way I operate. A digital console at side of stage. That console is connected to a laptop where

all the console’s functions can be remotely controlled. Then, using XP pro, I use a second laptop to control the first. Almost without fail, every new client will ask nervously “What if one of the laptops crash?” My pat answer is “I’ll let you know, if that ever happens...”

Time for honesty. It DID happen a few years back. When I was mixing a 40 piece orchestra and band in a packed Canberra Arts Centre. During the performance, the screen froze and the laptop refused to reboot. Bear in mind that there is no audio going through the laptop. It is simply a means of remote controlling the console. When the laptop froze, the sound did not stop. I simply made my way to the console at side of stage, and resumed mixing duties, using an audio monitor. Nobody noticed. It made no difference to the show that no one controlled the mix during the few minutes it took to discretely make my way to the stage mix position. During the



Eyegraphics (Terry Philpott)

*Eyegraphics (Terry Philpott)*

pickup, a journalist from The Canberra Times asked to speak with me, and made the comment that it was the finest live sound that she had ever heard at any show. Ever.

Beauty is based on music I have written over a 35 year period. So, yes, you could call it a lifetime in the making. It cost \$400,000 to stage for three weeks. A mere pittance for a wealthy consortium. (The costumes alone for *Wicked* cost \$3 million) But for Mr and Mrs Suburbs, this was a major undertaking that we always knew would take years to pay for.

So, with all the pieces in place, the story of our premiere becomes as fascinating as watching two trains speed towards each other on the same set of rails.

Halfway through Act One, the controlling laptop freezes. But unlike the previous occasion, this time I am switching 17 wireless mic systems on and off as performers enter and exit the stage. Every minute I don't have control is disastrous. Cast are indeed walking offstage and saying "Oh crap, I sang that flat" loud and clear over the PA. Or worse. Much worse. Just as I am wondering whether I should resume mixing at the side, the laptop starts working normally. Towards the end of Act One it freezes again, only for a few seconds, but enough to let more embarrassments through. Then halfway

through Act Two, that polite little frame appears on the screen: "Windows needs to close. We apologise for the inconvenience". And that's it, folks. Total lock up.

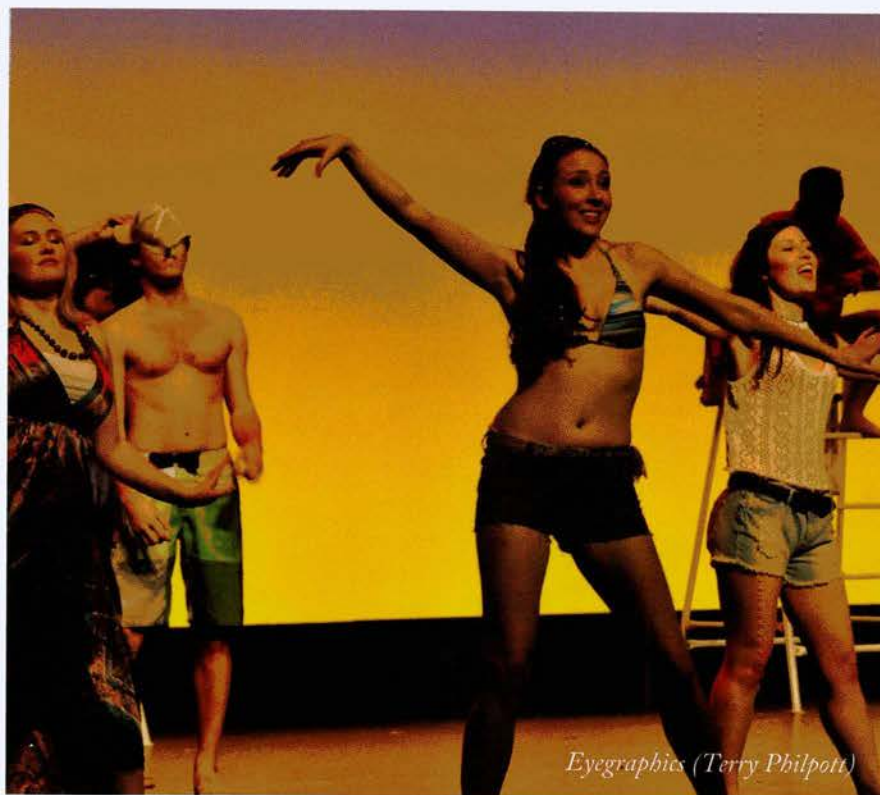
Our lighting operator makes a good living fixing computers and saw what was happening. Each time the laptop seized, he would lean across and offer suggestions. So each time, there were also major miscues in the lighting. Sets were meant to be moved on and off in blackout. Instead there was full stage wash while crew froze, unsure whether to proceed or not. In one scene, the mother sings of earlier happy times, as the claustrophobic kitchen flies apart revealing a tropical holiday land. As the kitchen is hurriedly wheeled off, it strikes a group of cables and a wheel snaps off.

As another reviewer put it, just when you thought it couldn't get any worse it did so: and then more.

After the total lock up in act Two, I did sprint to the console at side of stage to finish the show. But the area is so well isolated that I am totally unaware of how loud I am making it. Apparently excruciatingly loud. Many walked out.

Look, there were other issues, but you get the idea. We had a lousy night. It is interesting that while everyone could see the debacle unfolding, the reviewers differed as to the material. For example, one claimed the choreography was wonderful, while another thought it was awful. I think if *Masterchef* has taught us anything, it is that you can serve up the tastiest dish imaginable but if it looks like crap, it will be rejected. In theatre,





Eyegraphics (Terry Philpott)

presentation is everything. And what we plated up that night looked like crap. I wish I could say that if I was a critic at such a show, I would try and look beyond the obvious problems at the content. But in all honesty, I could not guarantee that I would. We always knew that asking an audience to listen to so much new music was a big ask. But with such a presentation, they had every right to respond "Why bother?"

After that show, our lighting operator took my laptops home with him, and found the one I had lent my son the previous week had been infected with an insidious virus. I had no protection because after my previous crash a few years earlier, I had vowed never to connect my "gig" laptops to the internet. After a clean out, and a fresh Windows install, the system was flawless, and worked perfectly for all remaining shows. Which were all received to great acclaim. By the time the reviews of the premiere came out the following week, the show had hit its stride and audiences were having a great time. One puzzled patron I spoke to after a show in week three had bought a ticket after reading the reviews, hoping to see the Musical equivalent to "Plan 9 from Outer Space". (Although he said he liked Beaudy, he almost sounded disappointed at the same time)

So I said to the woman at the merch table, "If you thought the premiere was as bad as I did, why come back?" She explained that she loved musical theatre and had been to see almost every show

in Sydney over the previous thirty years. She always went to the opening nights to see "a little bit of history in the making". And she said that each and every one she had ever been to was a mess. Her stories ranged from watching Harry M. Miller interrupt a performance of Superstar, to waiting four hours for the Priscilla bus to start. She said she always returned a week or so later to see a totally different show. "But," I said, "Why come back to see Beaudy after just two days?" And she smiled: "Because I just can't get your songs out of my head..."

For complex reasons, I am not allowed to sell copies of the simple DVD we made the following night. But if you would like the chance to make up your own mind, you can send me \$7 for a programme (plus postage), and I will include a free DVD of the full show.

Michael Orland

tpac1@optusnet.com.au

COMMENT:

Orland sunk around \$340,000 of his own money into Beaudy. "You have to go to the mission statement, and then wait ten years before you know whether it was a success", he told CX. "We wanted to put the work on stage".

He paid everyone.

How often does this happen? CX

REVIEWS

CX read the reviews in horror (Google for yourself), but the 'review' on Backstage Jobs just made us angry. The website is run by an intense young lighting guy. Here are some of the comments:

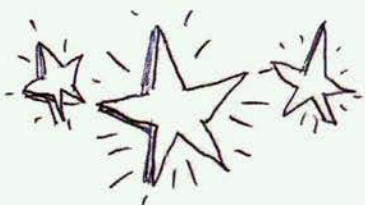
"As the show started I noticed in the main rig was a couple of mirror scanners (cheap disco lighting) and two show fogs which were in view of the audience and use of the Parade theatres standard lighting rig".

The lighting specific comments in the 'review' are fair given what Michael Orland says, coloured by the need for disco lighting in a disco scene, thus the scanners. But said 'reviewer' then went to the trouble to contact NIDA. He emailed: "Today I have received over 35 emails from members and subscribers of our site asking was Nida (sic) involved in this production at all as the technical aspects of the show was appalling and members have questioned why Nida (sic) would allow this type of production in there (sic) theaters (sic)."

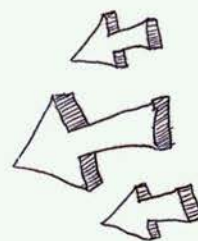
"The official response we have received from NIDA today is 'Michael Orland has hired the theaters (sic) from Nida (sic) on a independent and commercial basis'". Orland reports he was thus called in to see a senior NIDA manager. "It was like being called into the headmaster's office".

Backstage Jobs – whoever you are, why ever you are, by all means bag a production when it goes wrong, as this one did on opening night. But: 'Over 35 emails?' Yeah, sure. Making trouble with NIDA? Beyond the pale. Why is it the most critical, unreasonable, sarcastic, negative, narrow-minded technicians in entertainment are usually pimply faced male lighting wheenies? Some of them grow up to become useful members of the technical community. The rest are left to ask 'Do you want fries with that?'





SCHOOL © ROCKS!



Continued from page 27. •••••➔

Explain the concept of redundancy and its relevance in broadcast video?

It's when a signal - in this case an image - bounces back to restore an error! (We like the generosity of the image, self repairing!)

What is the impedance of a standard video terminator?

Generally $1\text{v} = 1\text{ ohm}$, so in Australia 240 ohms. (Of course 75 ohms would have been correct, but this is so much more believable!)

What is the frequency range of human hearing?

8dB - 85dB. (OK, strange ears!) 100Hz to 1kHz (And this poor soul badly needs a hearing aid!)

What is an insert point?

A point at which a device can be inserted. (OK, insert THIS!)

Describe something you feel is necessary to check during a site inspection?

How about 'what voltage is the three phase?' Or: 'Size of the room', but it is at an outdoor gig! (The students were on a roll with this one!)

But best of all there is this production supervision question about doing a gig at the Zoo. Not an unreasonable proposition. So, we asked the students to describe two unusual items they would take to the event, and explain why. Our students seemed to like this one....

Tranquilliser gun. If the animals got too scared this would assist the zoo keepers. Quite. Another interesting suggestion was food. For the animals. We are caring people here at college, yes? What about this: A caravan, so the crew have somewhere to go for a break. Or sausages - if a bear or lion gets out of control, the

animals go for the food, not the people. Like: a choice: live (breathing?) junior technician, or cold stale dead sausage? We know what we would choose! (We were looking for sensible suggestions, like wet weather gear).



Footnote: The language does get mangled. This was on a feedback form: *A few students have said that the first trainer was really good, but when the touch was pasted midway through the course the lessons were scrambled and lost poince.* CX



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history

Here we go again, back to the future to see how life has improved. Or otherwise. The archive cellar here at the campus is now filling up with mouldy college results and several cartons of horrible cheap plonk that Grafton thinks will improve with time.

TEN YEARS AGO

September 2000

What a great cover! The Olympics Button is Ready! And indeed it was, with our coverage detailing what was known of the Opening Ceremonies in Sydney. John Rayment spoke of what was at that time the largest lighting rig yet deployed. 14,208 channels of DMX, 970 movers and 658 conventionals. Across the street Australia's greatest live sound guy Bruce Jackson was working tightly with Norwest. Meantime Richard Lush was recording the orchestrals on Fairlight's Merlin – another great Australian innovation.

It pays to remember that since, many of the local Australian crew who pulled off this most excellent of all Olympic openers, have gone on to work many events on the world stage. At presstime

it's rumoured a bunch are in Delhi, slaving away to salvage what the Indian media have already dubbed the disastrous Commonwealth Games.

It's ten years since Australia showed the world what we can do – exactly half way in this magazine's 20 year journey.

STRANGE GEAR

Sony got some traction with their DMX-R100 digital console, and then seemed to fade from view in the pro audio community. It was / is a great console. CREST amplifiers started to sink as a brand with strange and confusing distribution changes and then eventual sale to Peavey. Hot in 2000 – stone cold in 2010. And not gear but strange anyway – SAE; the global education powerhouse which promises to turn your kids into recording engineers, was running adverts

with the Walt Disney Entertainment logo on there. Must have cost them a fortune as a licensing arrangement.

EVENTFUL

Nexo signed on with Group Technologies as distributors, thus starting a big decade which only now shows signs of faltering as the Nexo line re-organises with Yamaha as shareholders. We are watching the space Not knowing what we will see next.

OASIS

A production feature, direct from Wembley. 15mm pitch Screenco LED walls are new and hot – everyone is talking about the video on this tour, a portent of times to come. We speak to Bruce Johnston, the other great 'Bruce' name in Australian audio.



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MIDNIGHT OIL

Julius went to see the crew at the State Theatre in Sydney, and encountered resistance. Bad tempered, seemingly unhelpful. "I remember it well, I persevered to write what was a perfectly good technical story. To get there, I met one of them for breakfast in Kings Cross and went to the theatre several times. That's hard! They all came over in the end, but to this day I don't know why they were so difficult. If any of them read this, and remember, please tell me what was going on!"

STAGING IN COURT

Our lead news story went to the Supreme Court to report the fracas between very significant firm Staging Connections Melbourne entity and Village Roadshow Theatres – a significant shareholder. There was a war going down between Gary Hackett and Melbourne CEO Terry 'slugger' Davenport. It's good/bad that today nothing like this happens anymore CX was busy, until Staging got its act together in recent times.

WHAT WE PAID:

- Panasonic 1100 ansi lumen projector: \$8,495
- Hitachi 800 ansi lumen projector: \$6,995
- EV Mongoose EV03 2 x 15 and horn box: \$4,829

15 YEARS

Connections, September 1995

Busy cover, busy mag. CD Copyright police story was fun, morally corrupt mobile DJ's copy burning CD's so they



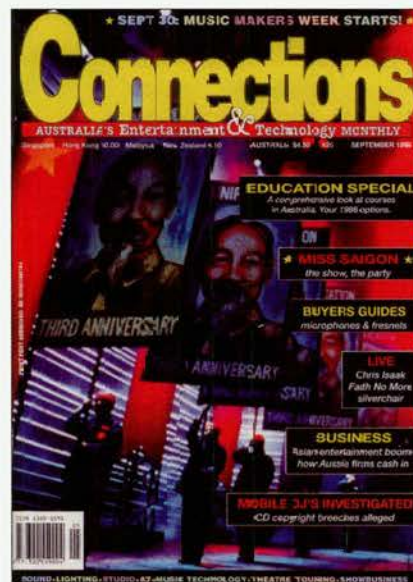
didn't need to lug 200 heavy vinyl LPs around. Poor possums got roddered by the Music Industry Piracy Investigation unit. We can now reveal we helped MIPI with this one, laboriously identifying loser DJ outfits that were – just beyond the pale.

SINGAPORE

Jands in Singapore were doing well with concert production work – picture of Peter Rooney and story about looking for larger premises.

SILVERCHAIR

Production story about emerging band. Good on them! Still a lot of black and white pages in the mag, colour printing cost a very lot back then. Big spread of people photos at PALA trade show in Asia.



TURRAMURRA

Nice story about how a suburban music store in Sydney opens a high tech studio division. Driving past just the other day, we note a totally new store next door for high tech. A winning retail concept, well done!

MISS SAIGON

A rare crash for Cameron Mackintosh as Miss Saigon opens and closes in Sydney. You just can't tell what will work in the theatre biz – we saw it, we loved it, we was wrong.

WHAT WE PAID

- Phonic MM122 8 channel mixer \$850
- ABH GS-1 £ buss console \$5,495
- Lexicon LXP-15 effects unit \$2,895 **CX**



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MONITORS



How in-ears and digital mixers changed everything. Mixing 24 sends on Yamaha's M7CL.

Julius took his analog and screaming wedges mindset into the new frontier and mixed monitors on a 'quiet' stage. Wow, how things have changed! Talk about working up a sweat....

By JULIUS GRAFTON

For a lot of my audio career I've sat at the stage monitor console. In the rock and roll era of the 80's, it was the quietest spot in the venue – behind the PA, side on to the guitar amps.

Today I've just done monitors on a digital console with ear packs, and I worked hard. It was a confronting test of my abilities. Fortunately the band were organised and accommodating – a far cry from the forgotten maniacs of the 80's, one of whom once threw an SM 58 vocal mic at me when he could not attract my attention. Luckily the cable was a little shorter than the distance, so it didn't knock me out. I retaliated with a full roll of gaff which did connect! Monitor

guy one, loser singer zero. I would have thrown my stubby of beer, but I was still enjoying it.

I was raised on getting ear-ripping loud wedges across eight sends, including drumfill with subs, and sidefill. Meat and potato foldback, all devices not processed, needing active crossovers and very particular third octave equalisation. A black art, especially the interaction between sends (mixes).

This story is about what is so very, very different with today's stage monitors.

MULTIPLES

Today I had seven singers – three on RX (wireless) and four on hand held. Two electric guitars, one acoustic, one keyboard player (usually there are two), drums, and bass.

Just like the old days, the desk was labelled in meaningful order. This rig has a Yamaha M7CL 48 channel console which has one very major advantage over most other digital consoles. There is a fader for every input, so you don't need to flip a page to get to a channel.

I've been doing front of house on another M7CL for a while now, and although it has some strange aspects I quite like the thing. The screen and control module looks like it folds up out of the back, and it should. But it is fixed

in place, making a lot of dead space in the road case. And there is empty real estate on the front panel, so it looks like a design engineer has been interrupted half way into the design!

But having a fader for every channel, you can label the desk with tape and pen. For someone from analog land, I like this. (See channel list)

It's passably easy to identify who is who on stage by knowing the positions relative to the channel, Vox 1 is furthest away (opposite prompt, I am on the prompt or stage left side of the stage). Vox 4 is nearest. Being hand held, they might cross over or swap positions. RX 1 to RX 3 is harder, wireless microphones means people will go anywhere on stage. I usually put a little code on the channel strip, like R for red head, or H for hat, or G for girl if there is just one.

If this was old days, eight sends would see four sets of wedges along the front, stereo sidefills through some double 15" and horn boxes, a drumfill with sub and top box that had extra treatment to move air close to the drummer, and a set of keyboard wedges.

SO MANY SENDS!

Today I had 24 sends, fully loading the M7CL and only possible in the Version 2 software implementation that Yamaha



The Desk.

introduced two years ago.

The desk outputs went to four wedge sends, eight stereo in-ear packs and four mono. Four of the packs were wired – for bass, drummer and keys, since these positions are relatively static on stage. This saved wireless frequencies.

All 12 packs were Sennheiser EK 300 IEM G2 which take 2 AA batteries. I like that they were already loaded with

batteries, saving me ten minutes. They had already done one gig and I knew from previous experience they would last a second one, so no need for new batteries today.

Many of the musos had their own ear moulcs, and those who didn't fished about in my collection of generics. One just wore a set of headphones, and one had her iPod set, albeit the upmarket

variety.

Clear labels on the packs helped sort out who was who, and being an installed system all the frequencies were sorted. Nonetheless there was ten minutes of faffing about before we were ready to start.

We hardly used the wedges, but you need them there for walk on acts, supports, and for when the ears stop working and the musos pull them both out. The universal signal for 'turn up the wedges'.

GOOD MD

Rob Drayton was the musical director. By day he is a senior broadcast audio engineer at Austereo in Sydney, and he knows his pro audio. That really helped me, since already having a trust relationship he wasn't going to make trouble. As many musicians do.

I had a mic and boom stand for him (he plays guitar) so he could talk to the band through their ears.

The other thing that is for band ears only (and definitely not for front of house) is the click track. Drummers use this electronic metronome for tempo, so they count in from the click and follow it. The band usually have click in their ears,



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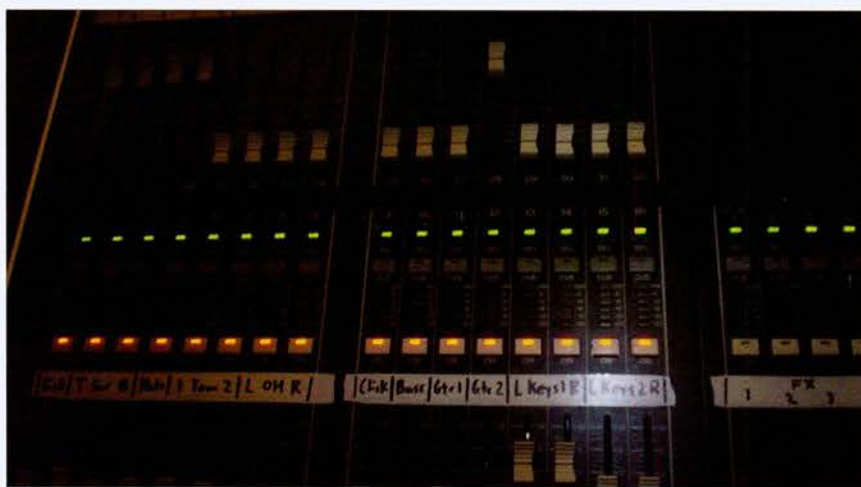
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Sends on fader mode.

but at differing levels.

So the first thing to wind up in the monitors is the MD mic, and the second thing is the talk to stage mic, for me to communicate with them. Once the ears go in, they don't hear anything else.

A good MD will be in control, and have each performer lined up for foldback. Rob does this one by one, so the drummer will play a pattern and get the drums organized, then bass, guitars, keys and so on.

But before all this, the M7CL needs to be set up.

STARTING

I always get there as early as possible, and get my listen ears and pack sorted out, then talk through the talk to stage mic to validate things work. The ear packs are lined up and ready, so the band can grab them. Wireless mics are tested and loaded.

The front of house dude has mic'ed the stage, I walk around and crosscheck, especially whether DI boxes are in the correct channels. If there's time, I get

him/her to check each of the four wired vocal mics.

M7CL has two distinct modes of operation. Normally the faders are in FOH mode so that fader up means sound travels to the stereo outputs, via one of eight DCA masters.

In stage monitor world, the stereo outputs go nowhere. But the channel faders need to be up, in order for signal to progress to any of the mix busses, which are set up as post fader. Post fader means the channel fader determines the overall level before the mix busses.

First thing you do, when using M7CL for monitors, is set the channel faders at unity, or zero dB – that is about 80% up the 100mm fader. Then make sure all the channels are not muted!

Then the DCA masters need to be the same – up and on. With that done, you can start to sort out the 24 sends!

There are eight master faders in the middle of the console, and they are switched to control mix bus 1 – 8, 9 – 16, and then Matrix 1 – 8. The use of the term 'matrix' has been stretched by

Yamaha, since it is really bus + matrix, because from any input channel you can send to 16 mix busses plus 8 matrix busses. You can also send from master outputs to the matrix busses – which is the normal use of a matrix. Normally, you can't send from an input channel direct to a matrix.

It would be simpler to just call it 24 mix busses, rather than 16 plus 8.

Each master fader needs to be up at unity, and switched on.

Once everything is up and on, each send can be set up.

SENDS ON FADER

When I first did monitors on a digital desk I would select the input channel and then go to the master section and attack the rotary control for whatever mix bus I was needing. Example: select vocal channel 3, then go to mix bus 1 and adjust.

Then the system engineer showed me Sends on Faders. In Yamaha land, you go switch it on, and then when you select a mix bus master it flips every channel fader to the mix bus. So you can see at a glance, and adjust fast, anything needed in that mix send.

On M7CL you need to have your brain working, because you can select the master fader and have nothing happen with the channel faders if send on fader is not active. To overcome this, Yamaha make every channel select light be on, when in send in fader mode.

One extra step, is that you must select one master fader cue button, in order to have your listen send work. Thereafter, it will 'follow' every selection. Without it, sound stops in your ears, which is confusing.

Then someone asks for more guitar one in the left ear, and more guitar two in the right ear. What the.....?

FINE BALANCE ACT

To alter the pan or balance of a stereo pair of mix busses, so that a stereo in-ear monitor system will be really stereo, you have to go to the rotary encoder at the master section and alter Pan between the two mixes.

This means departing from Sends on Fader mode, so you need to go straight back there via several button presses to ensure continuity of your own monitoring. Otherwise if you go silent, the band or MD will probably be asking you for things and you can't hear them.

All the while, the confusion factor of more guitar one into guitar pack two is lurking. There's so much fiddle factor with in-ears.

We recently hosted a 15 piece band here at campus, and proposed an in ear system. MD Kere Buchanan works with Tina Arena, Marcia and many others – a rolled gold session muso. He nixed the ears, 'give us eights sends of wedges, it will be far quicker'. He was right.

I fast started to enjoy in ear monitor mixing, because I could actually control EVERYTHING! Adding ambience from the several audience microphones spaced out the mix. If I wanted, I could also use a couple of effects from Yamaha's 'virtual' rack, although that would have meant inserting them over specific channels as I had no mix or auxiliary busses left.

The one other thing to mention is the four virtual graphic equalisers in the rack, useful for wedges but also not used by myself.

There was no feedback. I like that. The ear levels were relatively protected as well, Sennheiser and everyone else use serials limiting, mindful they don't want to be on the receiving end of a writ from a damaged muso.

I think in ear monitoring will save a lot of hearing.

Now I'm looking forward to using some other digital consoles for large scale stage monitoring.

CX

12 EAR PACKS

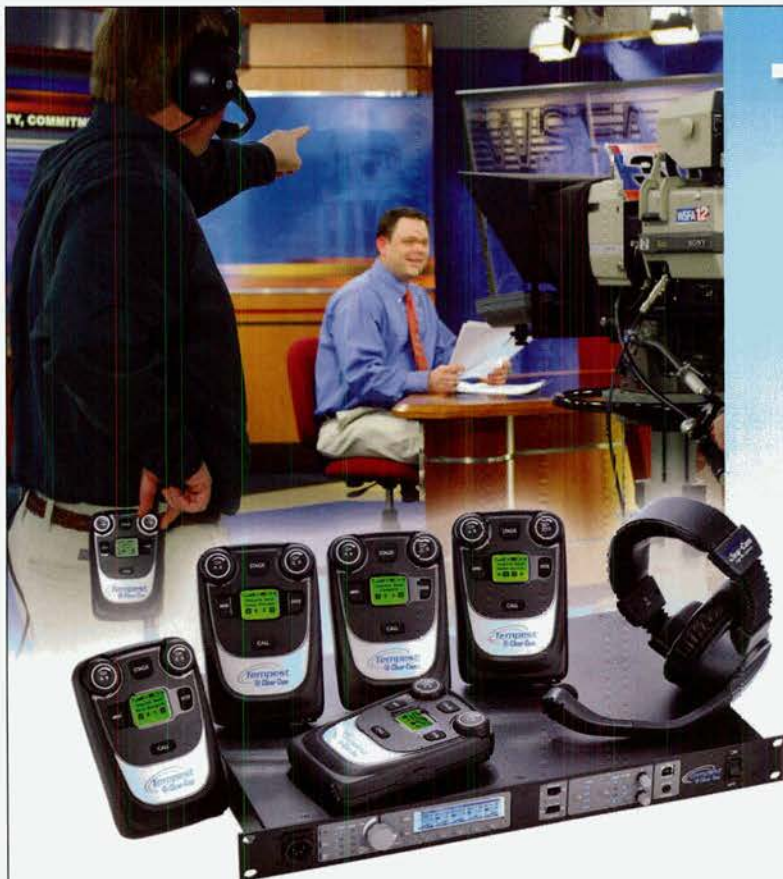
Drums (stereo)
Bass (stereo)
Guitar 1 (stereo)
Guitar 2 (stereo)
Acoustic DI (stereo)
Keys (stereo)
RX 1 (stereo)
RX 2 (stereo)
Vox 1 (mono)
Vox 2 (mono)
Vox 3 (mono)
Vox 4 (mono)
(Plus four sends of wedges)

CHANNEL LIST

1 Kick	15 Keys 1 L
2 Snare	16 Keys 1 R
3 Snare bottom	17 Keys 2 L
4 Hi hats	18 Keys 2 R
5 Rack 1	19 Ambience
6 Rack 2	20 Ambience
7 Floor	21 Spare
8 OH left	22 Vox 1
9 OH right	23 Vox 2
10 Click	24 Vox 3
11 bass	25 Vox 4
12 Guitar 1	26 RX 1
13 Guitar 2	27 RX 2
14 Acoustic DI	28 RX 3
	29 MD



Send on fader mode, cue bus sends mix 1 to listen wedge.



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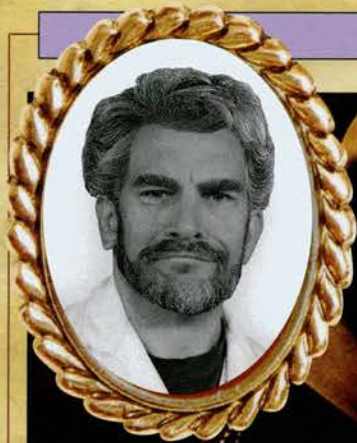
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LIGHTS, CAMERA, ACTION!

We've all heard the theory that shining lights straight into cameras wrecks the cameras. But surely there's no point having a camera if you're not going to let light in? Dr Danger explores the paradox...

By DR NIGEL SHORTCIRCUIT

Anyone who's ever panned a moving light has had some whiny camera guy shout at them about pointing lights into the camera. And everyone who's ever operated a camera has had to deal with some moron pointing lights into it. And just in case I've forgotten to offend anyone, you soundies haven't helped anyone with your smirking...

But is it actually true? Or is it just one of those 'everybody knows' things (like the world being flat, or Tony Abbott actually being a badly-disguised cheese & chutney sandwich)?

Never one to shirk the responsibility of bringing knowledge to the unwashed masses (that's you), I resolved to find out.

DAVID VS. GOLIATH

In a situation like this too much light is never enough, so I had a word with our local purveyors of equipment regarding the use of a Vari*lite VL3000. Somewhat relieved that their gear was to be the agent of destruction, rather than the victim, they were keen to help out.

In the other corner was Science Boy's Sony DSC-325 camera. At times he's appeared quite attached to this particular device, but what the hell – it's for science. Besides which, some weird electronic fault means you can never get the colour quite right. He says he likes it that way, but...

Anyway, there it is. VL vs. Sony. Place your bets, ladies and gentlemen.



BRIGHT?

Oh yes. Yes indeed. Even with the Danger Institute safety goggles on and my eyes shut, putting my face in front of the VL left me with blank spots on my retinas.

Undaunted, I set up the camera to stare straight down the barrel of the VL.

A couple of minutes later, I had another look at the image the camera produced. For some reason I couldn't quite get the exposure right with the camera staring into the belly of the beast, so I pointed it elsewhere instead.

Pink.

No, not pink. Magenta.

Everything is magenta.

V*L ONE, SONY NIL

That's right, in the space of only a few minutes we've gone from having a 3CCD

camera with some dicky capacitors and a slightly weird colour balance to a camera with no interest in green because it's now a 2CCD camera.

The red and blue CCDs survived this particular onslaught, but there's no telling what might have happened if we'd had time to leave the system running. Time waits for no man, however, and it's not like the pubs could get any more open than they already were.

IS THERE SOMETHING TO LEARN HERE?

There most certainly is.

Even though CCD blocks are significantly more resilient than old tube cameras, they're not destruction-proof. Too much light still kills them. Science Boy's mate the telly guy tells a story of blowing the CCD in only a couple of



David vs. Goliath



seconds when someone got careless with a laser. Zoom in on the sun and the thing won't last very long.

So next time the camera guys bitch at you about pointing lights at them, point them somewhere else. There's no real benefit in writing off gear at the gig.

And all you soundies – stop giggling when the lighties and videoids fight. 



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Capturing the Basement Birds

By STEPHEN BRUEL

Awash with luscious four-part harmonies, well-structured catchy melodies, alternate time signatures and acoustic instruments, we look at recording the Basement Birds, although I can't help thinking Basement Byrds may not be a bad name either – now where is that 12 string Rickenbacker?

The Basement Birds is a music project that involved Kav Temperley (Eskimo Joe), Kevin Mitchell (Bob Evans, Jebediah), Steve Parkin and Josh Pyke coming together to write and record material based upon a mutual love of the American 1960s folk sound of Crosby, Stills, Nash and Young – and alcohol. The album is available via download on iTunes or in stores nationally.

RECORDING AT KAV'S PLACE

Audio engineer Andy Lawson, whose previous credits include Eskimo Joe and Little Birdy, was brought in to record and mix the project at Temperley's home studio in Freemantle.

"I guess Kav's studio was the best choice as most of us live in Perth, there are no costs, it's comfortable and we can

use it anytime we want," said Lawson. "The studio itself is basic. There is no control room (boooo) so there was lots of recording with headphones on. Although being in the same room can be a challenge, I think this situation ultimately added to the intimate feel of the Basement Birds record."

According to Temperley the studio has seen some improvements over the years, but at a cost of comfort.

"The biggest technological advance that's happened in the last few years is there is now floor boards and curtains and not carpets on the floor and mattresses on the walls," said Temperley. "Though I do miss having somewhere to sleep when the moment takes me."

However, to improve the acoustics of the room, Lawson made use of those disused mattresses and anything else he could find.

"There is definitely some weird midrange frequencies bouncing around in the room so we put some foam up on the roof, we had baffles to move around, and we made a vocal booth out of a few mattresses," said Lawson.

Although basic in nature, the equipment used on the recording, a combination of gear owned by Temperley, Pyke and Lawson, was quite impressive.

FEEL THE FORCE

"We ran a Digidesign HD3 system with 192 converters, two Vintech 473 microphone pre-amplifiers (amazing pre amps, they are a Neve copy, maybe not as thick as a 1073 but damn close) and two Quad Eight channel strips that Josh informed me came from the desk used to mix the Star Wars film on," said Lawson.

For compression Lawson used a UA 1176, Distressor and a UBK Fatso and his plug-ins of choice included the Waves CLA classic compressor bundle, Waves V-Series EQs, Crane Song Phoenix analogue tape modeller and the EMI TG Limiter representative of the vintage Abbey Road Studio hardware.

"For microphones we used two Neumann U67s, two AKG 414s, a Neumann M149 tube, Neumann TLM 49, two Reslo ribbons (modified by Glen Phimister in Sydney), Royer 121 ribbon, Beta 52, 57s and 421s, Rode NT5s and a Rode K2," said Lawson.

THE DRUMS

Lawson's standard microphone set up consisted of U67s as overheads placed fairly high and over each tom pointing slightly towards the snare, a Beta 52 in the kick, 57s on both the snare up and down and 414s on the toms. Lawson also

placed a few room microphones up as well in random positions including just in front of the kick at the back of the room facing away from the drums, in the piano with the lid just open, and also some on the floor.

However, for the song *Skin of the Sky*, the set up was anything but standard.

"Mal (Malcolm Clarke) the drummer and I came up with the idea of putting rack toms on top of the floor toms to create a unique sound for the main beat of the song," said Lawson. "We decided we were going to keep the snare out of the song until the outro, so that influenced my microphone set up a lot.

"I had a 67 on top of each set of toms, 414s on the bottom heads, a 52 on the kick, a 57 on the snare top and the M149 as a mono overhead. I felt like a crazy man putting the 67s on the toms but I really wanted the toms to be the soul of the drums. The two 67s went to the UTK Fatso in splat mode 'Drum Heaven' and the overhead went to the Distressor with both signals not pushing more than 4dB of reduction. *Skin Of The Sky* is Steve's (Parkin) baby. His songs always have this cool indie thing going on, so that created the vibe."

Another variation from the standard set up was used for the song *Hardest Part*.

"We were after an old school sound for this song so I just ended up using two microphones in total on the drums for this track," said Lawson. "I placed a Royer 121 ribbon above the hit over the snare and a Reslo ribbon in front of the kick."

THE MANLAR AND BANJITAR

Although the band tried to be authentic

in terms of recreating the sounds intrinsic to the 1960s American folk genre, a few tricks were used along the way. Kevin Mitchell admits to playing "a little mandolin guitar which sounds like a mandolin and has the body of a mandolin but the neck and tuning of a guitar". He also played what he calls a "cheater's banjo".

Lawson recorded the acoustic instruments on either a 414 or a U67.



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"I preferred the 414 in that room as it got the best sound," said Lawson. "It would be as simple as standing in front of the instrument with a set of headphones and sweeping the instrument until I found the sweet spot, then sending that to the Distressor on its acoustic setting."

"It's amazing. When recording the banjitar I always put a microphone behind it to capture all of the resonance from the skin that came out of the back. It gave a very cool depth to the instrument."

ELECTRIC FOLK

As a predominantly acoustic project, electric instruments were kept to a minimum.

"There are maybe only two or three electric guitars used on the whole record and they were always recorded through a Bad Cat guitar amplifier with a Roland Space Echo pedal," said Lawson. "I would use a 57 up close and either a U67 or the Royer ribbon microphone about 30cms back from the speaker, depending on

which one sat in the track better."

For bass guitar, Temperley had a 1967 Hofner bass guitar (Beatle Bass), his new hollow body Warwick model (similar to a Gibson 335) and a double bass as his disposal.

"Both the Hofner and Warwick had round wound strings and went straight into Kav's Aguilar bass amplifier," said Lawson. "We took a straight DI out of the head and then had a 421 on the bass amp speaker."

"For the double bass I took a straight DI and placed a U67 in front of the 'F' hole. Pretty damn cool instrument. All of the DI sources went into my 1176 compressor (I love that thing on bass) and the bass amp signal went into the Distressor in Opto mode for added warmth."

THOSE SWEET FOUR-PART HARMONIES

Lawson said recording the vocals was the easiest part of the process.



"The 67s to me sound amazing on vocals as they're very thick in the midrange which is perfect for acoustic music," said Lawson. "The boys really could sing so it was fairly easy."

THE LAST WALTZ

Lawson said it was the most fun project he has ever worked on as the band were relaxed and always having a laugh, the talent of the musicians was of a high standard, and the 1960s folk genre allowed him the opportunity to tinker and experiment with different recording techniques.

"I wanted to make a really honest record and I think that's what we've done," said Lawson. "I also really wanted to experiment a lot more than I usually do - try different mics on the guitars, stack drums on top of each other, send pianos to a Leslie speaker, that kinda thing. I have been doing a lot of rock recently and sometimes there is not much room for tinkering." CX



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HHB FLASHMIC DRM85-LI



Not to be confused with a flash mob, the Flash Mic from HHB is something quite different – though you may find them in the same places?

By JIMMY DEN-OUDEM

The FlashMic concept is simple: Take a microphone and put a broadcast quality digital recorder inside it. Then stick a record button on the side. The FlashMic is intended for those of the journalistic persuasion, and it's perfectly suited to record interviews, press releases, or speeches.

The FlashMic very closely resembles a Sennheiser evolution series radio mic – even down to the display. It's available in two models – the difference is the option to input line level audio via a Bantam patch lead (supplied). Not entirely surprisingly, the capsule is a Sennheiser,

and comes in a choice of cardioid or omnidirectional.

Many people tend not to think too much about omnidirectional mics for live production, but for journalism or broadcast applications they take on a new degree of relevance. More on the polar pattern a bit later on. But for now...

FEATURES

The FlashMic has 3 buttons on the side – Record, Play and Menu (which doubles up as a Stop button). There's a backlit LCD display which shows audio input level, remaining record time, and menu functions. The menu is navigated

using a thumbwheel on the base of the mic, next to which sits the bantam audio input, mini USB socket and 3.5mm headphone socket. It's a simple thing, done well.

Ignoring the very good instruction book, I piled in batteries and hit record. The unit recorded, and while it was doing this it showed me a countdown of how much record time remained. Pressing Menu stopped the recording, and the unit was ready to go again almost straight away. Battery life is quoted at > 8 hours. You can't remove the flash memory, but you're unlikely to need to given that record time is just over 3 hours at maximum quality

(48kHz WAV file), or around 15 hours in 32kHz MPEG1 format. So a 1 hour press release poses no challenge. In case you want to hear what you're recording, the headphone socket provides real-time monitoring, as well as playback of recorded files. You could use the thing without ever connecting it to a computer – the playback function works nicely and once it's rolling you can pause and scrub back and forth using the encoder. But plug it in – you'll get much more out of it. The mic is supplied with software which allows for configuration, as well as transfer of the recorded files. I didn't bother with the software, instead opting to plug the unit into my Mac and see what happened. It worked, the file transfer was fast and flawless.

The internal menu on the mic provides enough options to configure it for whatever your application may be – battery type (rechargeable or alkaline), record mode, date & time setting, and track delete. Especially noteworthy is the record level adjustment, which runs from 0 – 40 (most sensitive). Drop one click below 0 and the FlashMic drops into AGC mode, which actually works really well. There's also a pre-record mode, in which the mic buffers what happened for a few seconds before you pressed

record. When you do start recording, you can press and hold the record button again to lock it in record mode so it can't accidentally be stopped. Someone will need to build a really good idiot to outsmart this thing.

PICK UP LINES

We deliberately chose to look at (and listen to) the omni version of the mic. I did some tests and even when addressing the mic from the wrong end, there's still vocal definition and enough quality in the recorded audio to clearly understand what's being said. Side address worked even better, with clean top end and natural low end. Front address is equally good – it's a really nice omni capsule. What's more impressive is the way it responds under real world conditions – I tried the mic at a greater distance (around 500mm) and it still picked up speech which sounded natural and full. The level dropped a bit, but given our lives are governed by the basic principles of physics this was not entirely unexpected. It still sounded good. I played back some recordings on my desktop speakers and cranked the level up. I'm sure there's a noise floor there somewhere, but I ran out of gain on the

speakers and laptop before locating it. Handling noise is similarly negligible.

The biggest gripe, and really the only gripe I had about the FlashMic wasn't about how it worked, it was about how to stop it working. I couldn't figure out how to switch the darned thing off. Turns out you have to hold the encoder down for a few seconds – I probably should have read the book. **CX**

BRAND: HHB

Model: FlashMic DRM85-LI

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PATHWAY PATHPORT



Modern lighting control systems require more complex distribution than just a simple DMX splitter. Pathport is an install product which addresses this need.

By JIMMY DEN-UDEN

DMX512A has served the entertainment industry well for many years. It was a significant leap ahead over the smattering of proprietary multiplexing protocols we started with, a big jump on analogue, and made the days of rheostats and geared levers look, well, archaic. But it's actually a pretty limited protocol – 512 channels of 256 values each. Not exactly challenging for the data gurus of the modern age, and not exactly helpful when we're now using fixtures which eat up to a few hundred channels. Then there's pixel mapping – 3 channels per pixel (RGB) gives you 170 pixels tops

(or a 13 x 13 matrix) on a DMX512A universe.

There's little question the world of lighting control is changing. But it's slow – very slow. Artnet and Ethernet ports are becoming increasingly common for their speed and channel count, but for every Ethernet enabled fixture out there, there's 100 DMX enabled units. And we're still using them. So where does this leave the humble venue proprietor – do they install DMX or Ethernet?

BRING ON PATHPORT

The simple answer is both – Pathport is essentially a system which allows DMX to run over standard Ethernet.

It runs through normal “off the shelf” network switches, and standard Cat5 data cable. You can patch it on RJ45 patchbays, and terminating the cable ends is quick and easy. So you can in essence now install Cat5 data cabling to all your lighting positions, then just place a node on the end. The nodes run power over Ethernet, so there's no local power required. When you need Ethernet, disconnect the Pathport node. When you need DMX, re-connect it. Or better yet, spend the extra dollars and install a couple of data cable runs to each position and have both active. In 30 years or so when DMX512 is redundant, you can remove the nodes and increase your data capability. Pathport is strange



in that it sort of exists with the aim of making itself redundant.

While you could theoretically incorporate it into your building's existing data network, you could also theoretically drive your car with a blindfold on – but the results are likely to be less than optimal. In the same way it's not right and proper to run DMX on mic cables (this will come as a surprise to some), it's not right or proper to run your lighting control system over a network that exists for a different purpose.

HOW IT WORKS

Pathport uses nodes which are cabled back to a central network switch over Cat5. You can input or output DMX 512 on any of the nodes, and you can define which universe each socket on the node relates to. Each node can listen to and transmit a number of different protocols, and translate them. Nodes will process up to 64 universes – this is important since the whole system is based on distributed processing. There's no "central brain module".

Nodes are available in single input or output (the UNO), the dual wall mount with 2 in, 2 out, or 1 of each, as well as rackmount and touring editions. The input and output designation really just defines which connector the unit is supplied with – all nodes can be input or output devices depending on the configuration. If you want to use an input node as an output just put a gender changer on it and adjust the config. Save for the Uno, all nodes have a display to tell you diagnostic information about what universe the outlet below relates to. The touring and rackmount nodes allow you to change universe on the fly, others require you to use the software and a laptop. There are also 8 way and DIN mount nodes available, as well as install versions which use terminals rather than XLR connectors.

The software is nice and intuitive –

plug it into the same network as the nodes and scan to see what devices you have active. You can change the names they show on the LCD displays, turn backlights on and off, and more importantly adjust how they function. At its simplest, it's a very smart way to distribute one or more universes to multiple locations. Getting a basic system with a few nodes up and running takes little time.

But it goes beyond that – different input channels on different nodes can be mapped to different outputs on other universes. Different input nodes can take priority over others, with smooth fade transitions between states when you change from one node's input to another's. You can make only selected channels available to certain nodes – good for restricting hirers to only parts of an in-house lighting rig. Multiple DMX distribution setups can be saved onto the computer and then recalled later as required, and the network updates happen very quickly to each node.

PATHWAY TO EASIER DMX

Pathport lets you put your DMX into and take it out of the system wherever you have a node. It's a bit challenging to get your mind around initially, but implemented correctly is capable of making life for end users of the installed system much easier.

BRAND: PATHWAY CONNECTIVITY SOLUTIONS

Model: Pathport

RRP: Uno single port node \$625.

Dual port C series node - \$1180.

Rackmount / portable dual node \$1370.

Touring node - \$775.

Product Info: <http://pathwayconnect.com>

Distributor: <http://www.jands.com.au>

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GRASS VALLEY T2 iDDR



HD, 3D and now T2 – CX checks out Grass Valley's newest product offering

By JIMMY DEN-ouden

The T2 is the new generation of intelligent digital disk recorder from Grass Valley. We looked at the original Turbo disk recorder some time ago, but the T2 represents several significant advances.

FROM THE BACK TO FRONT

T2 is a one input, two output unit and will support all these functions simultaneously. It's designed to take the place of a tape machine, or more accurately 3 tape machines. T2 supports both standard and high definition video, and available inputs include composite, component, DVI-I as well as SD/HD SDI. Outputs are available in the same array of formats, plus computer video. Audio can be input and output on paired XLR connectors for each record or playback channel, as well as embedded in the SD/HD SDI video.

Additional connections include gigabit Ethernet as well as RS-422 and GPI interfaces for external control of the unit by either Sony BVW protocol, GPI, or AMP – a protocol allowing the T2 to interface to Grass Valley's Indigo vision mixer. There's also the usual array of ports you'd expect on a computer based system – video, keyboard, mouse, USB and firewire. We played with the RAID model, but there are also non-RAID and solid state storage models available.

BITS & BUTTONS

The front panel of the T2 resembles a tape machine interface with the added bonus of a gloriously large and beautiful touch screen. The spec says it's 7" but it feels bigger. Not normally a fan of touch screens, I was pleased to find this one works quite well, and the display on it is amazing. The screen runs in a couple of different modes – there's a view which shows you what each of the playback and record channels is doing simultaneously, or you can look at each channel in more detail. Choosing which channel you want to operate is a matter of selecting it using the hard keys to the left of the screen. A selection of keys below the screen allow for transport functions, as does the big jog/shuttle encoder wheel to the right.

The front panel user interface is easy to navigate, even if you need to get into the setup options to adjust input/output parameters and such. It's even possible to build playlists and trim clips. This is a good thing, since "flyaway" users may not want to carry around a screen, keyboard and mouse to use the "workstation" interface. T2 feels more capable self contained than the original Turbo iDDR did.

IMPORTS

T2 allows you to import video files, and this is a relatively new feature. On many traditional server based replay systems the only way to get video into the system is to dub it into the system in realtime.

Which is slow. Data is fast. You can also get your content back out the same way which is useful for quick turnaround situations. Compatible video file formats include Grass Valley HQ, MPEG-2, Quicktime (H.264, ProRes422, DV, DVCPROHD), WMV and EOS 5D. Still images can also be imported in JPEG, TGA, BMP, PNG, TIFF and GIF formats. 2 or 4 drive options allow up to 9 hours of HD storage at 150Mb/s, or 25 hours of SD at 50 Mb/s. Maximum bit rate is 200 Mb/s per channel. HD is well catered for, as is 3D for live projection applications – both playback outputs can be synchronized. Internal transition effects between clips fill out the package nicely. Another nice touch is the extensive support information on the Grass Valley website.

CONCLUSION

Visually, T2 is a sexier piece of kit than its predecessor. It's sleeker in appearance and with the front panel occupied largely by the screen it really does look good. It wouldn't be hard to use the T2 as a drop in replacement for existing tape machines, it's about 3RU high and similar in depth. I'd probably leave a space above it, not so much to let it breathe but just for the sake of appearance. At 15kg it's a good deal lighter than traditional tape based machines, so it saves some weight, and does this 3 times over. Functionally it bears several advantages over the original Turbo.

All up T2 sits in a good spot in the market. Smaller OB operators could use it for replays and records, corporate AV companies would find it a good solution to video playback for event situations, and it would work in small TV studio situations equally well. It brings HD functionality to a more affordable price bracket. The T2 fundamentally only really does 2 things (play and record), but they are two of the most useful things a video device can do, and it does them well. **CX**

BRAND: GRASS VALLEY GROUP

Model: T2 RAID

RRP: iDDR2-HD - \$18,500.

iDDR2-RAID - \$22,750.

iDDR2-SSD - \$27,000.

Product Info: <http://grassvalley.com>

Distributor: <http://avgroup.com.au>



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PROCO MOMENTUM

Many folk will be familiar with the ProCo range of "useful things" such as DI boxes and adapters. Lesser known is Momentum, their digital Multicore system. We took a look.

By JIMMY DEN-ODEN

Momentum is the ProCo answer to bulky copper analogue multicore cable. The system is capable of carrying up to 256 input channels of audio over Cat6 cable. At 48 or 96K Cat 6 cable supports bandwidth to 250MHz, unlike Cat5e which is limited to 100MHz. More bandwidth translates to more/better/both audio. The system is modular, and sold in 8 channel blocks.

The modules are capable of power over Ethernet, so once you install a powered switch you just run one cable to each module. The modules that will likely be of most immediate interest are the mi8 input and mo8 output units. Physically, they are blue boxes 1RU high with eight connectors on the front panel – female combi jack (XLR & TRS) for input and male XLR for output. Also on the front panel is a 3 digit LED display accompanied by 2 buttons. The back panel houses parallel DC input sockets (redundant if you're using POE), and of course the Ethernet connector. There's a fibre option for the Ethernet port, as well as a contractor option which adds D25 and phoenix terminals on the back, parallel to the front input or output connectors. Fibre is not needed unless you plan to exceed the 100m cable length Cat6 cable permits. Latency through the system is quoted at 0.630ms A/A 48K sampling when no DSP is used, or 1.00ms with DSP.

NETWORK

Like so many things now, Momentum is easy to get up and running. Our test kit included a pair of mi8 and a pair of mo8 units, as well as a pair of powered Ethernet switches and a laptop with the control software installed. Looking over the network topology setup there was certainly nothing fancy or peculiar going on – input boxes went to one switch, outputs to the other, and a cable linked the two switches together. Simple. Plug the config PC in wherever you want – it will work anywhere on the network.

But Momentum goes beyond just analogue IO. The md16ae unit, which has 16 digital inputs and 16 digital outputs all on TASCAM compatible 25 pin D connectors. The mo8me mix engine allows you to generate 4 stereo or 8 mono mixes from up to 32 input signals, and can be controlled by the mrc "Tweak" remote. There's also the mcy remote headamp control interface, which allows you to control up to 64 channels of input interface via a Yamaha digital console.

TAKING CONTROL

The aforementioned front panel control buttons allow you to setup each unit and control phantom power, pad, input and output gain as well as routing. In theory at least – in practice it's intuitive enough to send me diving instantly for the manual, and still be confused. Thank God they got the software right – well nearly, it's a "PC only" deal which potentially stands to alienate people such as myself who prefer computer technology which works reliably. The software program is pretty sensibly laid out and unlike the hardware interface it instantly makes sense. There's a virtual patchbay which allows you to route any input to any output, as well as pages to control gain, phantom, pad etc...

Booting the system up takes a little time – maybe a minute, although I suspect this is more the nature of the power over Ethernet switches we used. Once it's running it seems quite solid, and equally importantly it sounds nice. The system uses a combination of Texas Instrument, Burr Brown mic preamps and Cirrus Logic digital converters to try and achieve the same results as an analogue core, without the analogue cable. When driven into brutal clipping

it doesn't replicate analogue, it sounds digital. That said, it's not the worst digital clip I've ever heard – and if you're



mTweak application for iPhone

bad enough at audio to run everything into digital clip, then you probably deserve worse than Momentum will serve up.

CONCLUSIONS

Low latency is one strong point for the system, and another is mTweak. mTweak is an iPhone app which interfaces to the mo8me unit to allow remote control over each mix, including levels EQ and pan for 32 input channels. Many personal monitoring systems cater easily for 16 channels, but 32 represents something of an advance. All up Momentum is solid, and if you can get past the clunky front panel interface (either using the console interface or a computer) it's likely to serve you well. **CX**

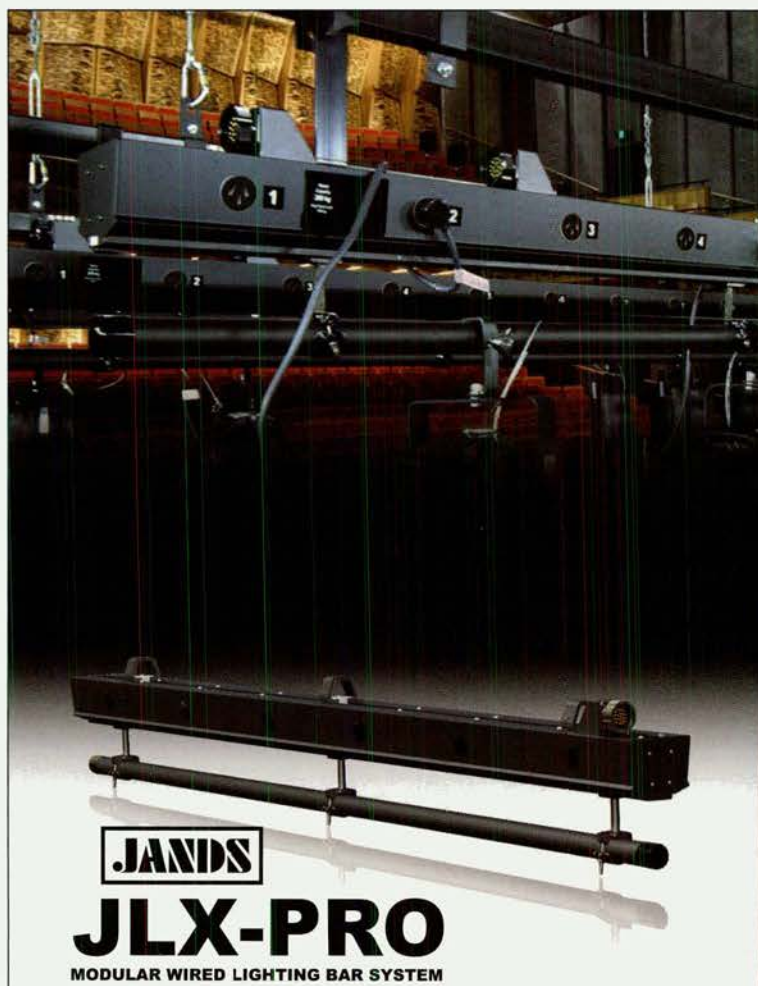
BRAND: PROCO

Model: Momentum

RRP: mi8 - \$2820.77, mo8 - \$2514.34, mo8me - 5468.68

Product Info: <http://procomomx.entropy.com>

Distributor: <http://madisonotech.com.au>



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AUDIO-TECHNICA 3000 SERIES WIRELESS MICROPHONES

There are a number of radio microphone systems out there to choose from, ranging from very expensive to the very cheap. The Audio-Technica range of wireless systems has been in the market for quite a while and the 3000 series sits somewhere in the middle of the price range.

By STEPHEN DEAN



AT 3000 front.

First impressions of the system are very good. The ATW-R3100 receiver unit is half a rack unit wide and 1 rack unit high. It has a simple power switch, liquid crystal display, 2 up and down buttons and a mode/set button. The rear panel carries two antenna connectors, a ground lift switch, AF output level control, power connector and 2 outputs – balanced XLR and unbalanced 6.5 jack. The LCD shows all the usual information like AF level,

RF strength, frequency and transmitter battery level. There is also an alert LED used to indicate serious problems: No RF, clipping, muted mic, very low battery. Setup is quick and simple.

MICROPHONE OPTIONS

The system is supplied with either a T341 handheld microphone or an ATW-310 belt-pack with a headset. The handheld is comfortable in the hand and lightweight. It is probably not the most solid of handhelds, but it should last. The power button is on the bottom and doubles as the mute switch. You press and hold to turn on or off and press momentarily to mute or un-mute. This occasionally caused a problem when the talent bumped the switch and sent it into mute mode. This can be disabled using the power/mute lock settings in the

menu. Unscrewing a section of the body gives access to the up/down arrow keys and the set button, used for tuning and other functions. The two AA batteries, good for around 6 to 8 hours, are accessed the same way. The LCD shows frequency, battery level and mute status. Some people might find that this display is a bit small to read comfortably.

In use the mic has a pleasant sound, with little colouration of the source material. It handles all vocal types fairly well and seems to have a fairly predictable polar pattern. It also does not pick up much handling noise in use.



AT belt-pack.

The belt-pack transmitter is built from a similar impact resistant plastic and has all of the same controls as the handheld and similar features. The controls, including input gain, are protected by a sliding panel. Again the display is a fraction too small and can be a struggle to read. Power comes from two AA batteries, and battery life is similar to the handheld. The belt-pack came with a Pro-8HECW head worn mic, which is rather ugly looking and, to my ear, not as good as it could be. Some work with the EQ can get a reasonable sound from it, but I would suggest a better mic if you were going to use it for singing. The belt packs are very light and fairly small so they are easy to hide in costumes and so on.

CONCLUSION

These are very simple units to use, easy to set up and operate. The manual that comes with them is easy to follow and you will be up and running in no time. These are a good option for schools and similar venues seeking quality at a reasonable price and should last well with looking after.

CX

BRAND: AUDIO TECHNICA

Model: 3000 series wireless

RRP: \$1295 (handheld kit) or \$1345 (headset kit) as tested.

Product Info: www.audio-technica.com

Distributor: www.tag.com.au

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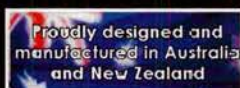
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EDIROL V-1600HD



Roland's new multi-format video switcher takes the 'multi' in its title seriously.

By ANDY MACKENZIE

All too many live vision gigs involve connecting piles of different signal formats, aspect ratios and resolutions to the same system. In days gone by this meant implementing a bewildering array of processing gear – scalars, scan converters, aspect ratio converters, and various others. Thankfully, many modern devices have all the processing on board – making the system setup neater, quicker, easier and less likely to fail. All good.

The Edirol V-1600HD takes this idea about as far as it can be taken.

INS & OUTS

There is nothing that can't be plugged in somewhere. Through its various input connectors the V-1600HD will accept SDI (SD or HD), DVI-D, HDMI, analog RGB, component analog HD and analog SD (composite or s-video). Each of these input types is, of course, accepted in an appropriate range of resolutions and aspect ratios – up to 1920x1200 pixels. You can also park a still image in the device for keying.

All the input connectors have loopholes next to them, which is a

convenient way of hooking up monitors – especially in those formats where the concept of a loop through monitor hasn't caught on. There are also terminator switches in case you don't want to use the loopholes.

Outputs can be spat out as analog SD (composite or S), analog HD (component), analog RGB (15-pin D-Sub) as well as DVI-D and SDI (SD or HD). It's actually possible to set up the internal processing so that you can get the same content delivered to multiple outputs in multiple formats and resolutions – maybe SD for the archive record and HD-SDI for the projection, or 16:9 for the plasmas cropped to 4:3 for the projectors.

UPS & DOWNS

The onboard processing takes care of everything, generally without being told to. All the inputs get scaled to match the main output settings – whether that means going up or down. When I plugged a bunch of stuff in this seemed to work out OK – different aspect ratios were dealt with by letterboxing, but you can open up the menu and set each input individually to crop or stretch instead if you want.

Being able to stick just about any signal in and get something useful out is a desirable thing in the live production environment – especially in the corporate production world where you're constantly faced with DIY DVDs and a plethora of laptops with various ludicrous aspect ratios and resolutions.

The quality of the conversions is what you'd expect. While there's no such thing as perfect scaling, given that you're always either throwing some bits away or making some bits up, the conversion is perfectly acceptable. The same can be said of latency – processing will always take time, but the latency here seemed pretty good.

TRICKS & TWEAKS

The V-1600HD offers a few different operational modes which give a fair



Simple, logical layout.

bit of flexibility. You can key the two busses using either luminance or chroma, and the downstream key function allows for one more layer – drawn from a source of your choice, so it's a great way to park an animated or still logo/watermark.

There are a couple of options for output modes – span mode crops the top and bottom of the output before scaling it and sending it to two outputs for a two-projector widescreen arrangement. Dual mode gives you two outputs, each of which can be separately switched, while split puts two images next to each other on the one output.

Roland have also come up with the clever idea of camera multiplication – or 'virtual multi-camera' as they call it. Connect a single camera on a wide shot to one input, then loop the signal through to other inputs. Crop the image at each input to give you the part of the shot that you want, then you can switch between shots. You'd get some loss of resolution, but there are obvious uses for this trick.



All formats welcome!

LOOK & FEEL

There is an obvious family relationship between the V-1600HD and other Edirol vision switchers – the buttons, t-bar and other controls are the same, as is the general look of the thing. The controls have a nice tactile feel, especially the input select buttons, and the layout makes sense – everything you need to get access to is sensibly positioned.

There's a screen provided as well, which can be used as a preview, program or auxiliary monitor as well as providing access to the menus. I'd imagine that in most applications people will use external monitoring, but there are times when this could be handy.

LAST WORDS

It's straightforward, and all the basic functions work out of the box. Menu access and setup are clear and logical, and control, at least for me, was intuitive. Only having one analog SD input means it won't be an option for those just preparing to go digital, but if your cameras are SDI already, this makes a lot of sense. CX

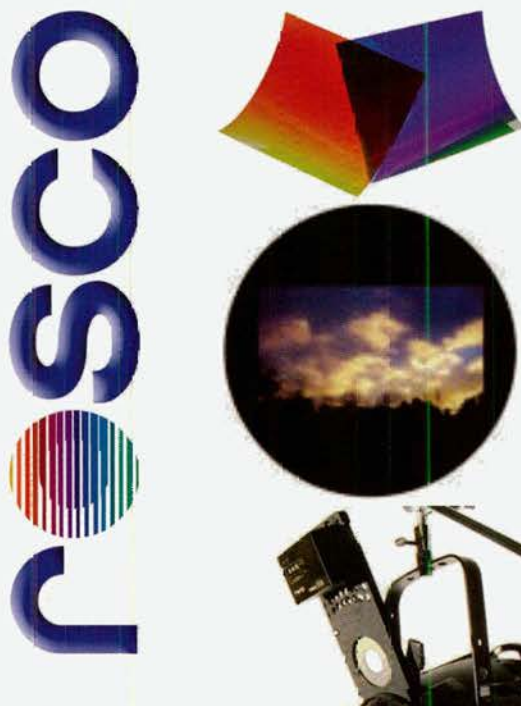
BRAND: EDIROL

Model: V-1600HD

RRP: \$20 995

Product Info: www.rolandsystemsgroup.net

Distributor: www.rolandcorp.com.au



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*To gain VNC capability, your Nightlife System should be connected to a wireless PC network (through your IT Support company).

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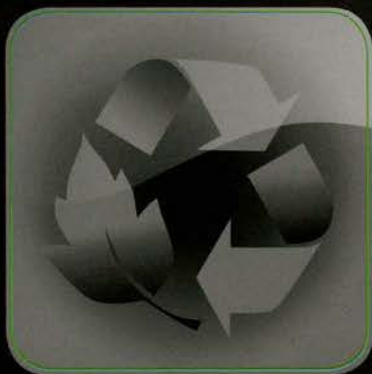
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