



## MONTHLY TECH NEWS

entertainment & broadcast

CX 78, FEB 2013

### LIVE! Road Skills

Gotye, Coldplay,  
Simple Minds,  
Mariah Carey

### 10 FUN PRANKS!

Exciting and Naughty  
things NOT to do!

### ROADSHOW

Touring in Feb!  
National Safety Summit  
(+ FREE Beer!)

#### CX NEWS:

- SMPTE - Holds secret close!
- XXXX Island Man Cave
- Riedel Add Staff
- Amber Technology
- The many faces of Col West

#### GEARBOX REVIEWS:

- ELAN Audio RMU-01
- Martin M2GO
- SHURE VP89
- BOSE L1 Model 1S
- Mackie DL 1608 & MORE!

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Perth Hyatt
- ADELAIDE Monday 18th February  
Convention Centre
- MELBOURNE Wednesday 20th February  
Convention Centre
- CANBERRA Friday 22nd February  
National Convention Centre
- CHATSWOOD Monday 25th February  
The Concourse, Chatswood
- BRISBANE Wednesday 27th February  
Convention Centre

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**SHOW ELECTRICS MASTER CLASS**  
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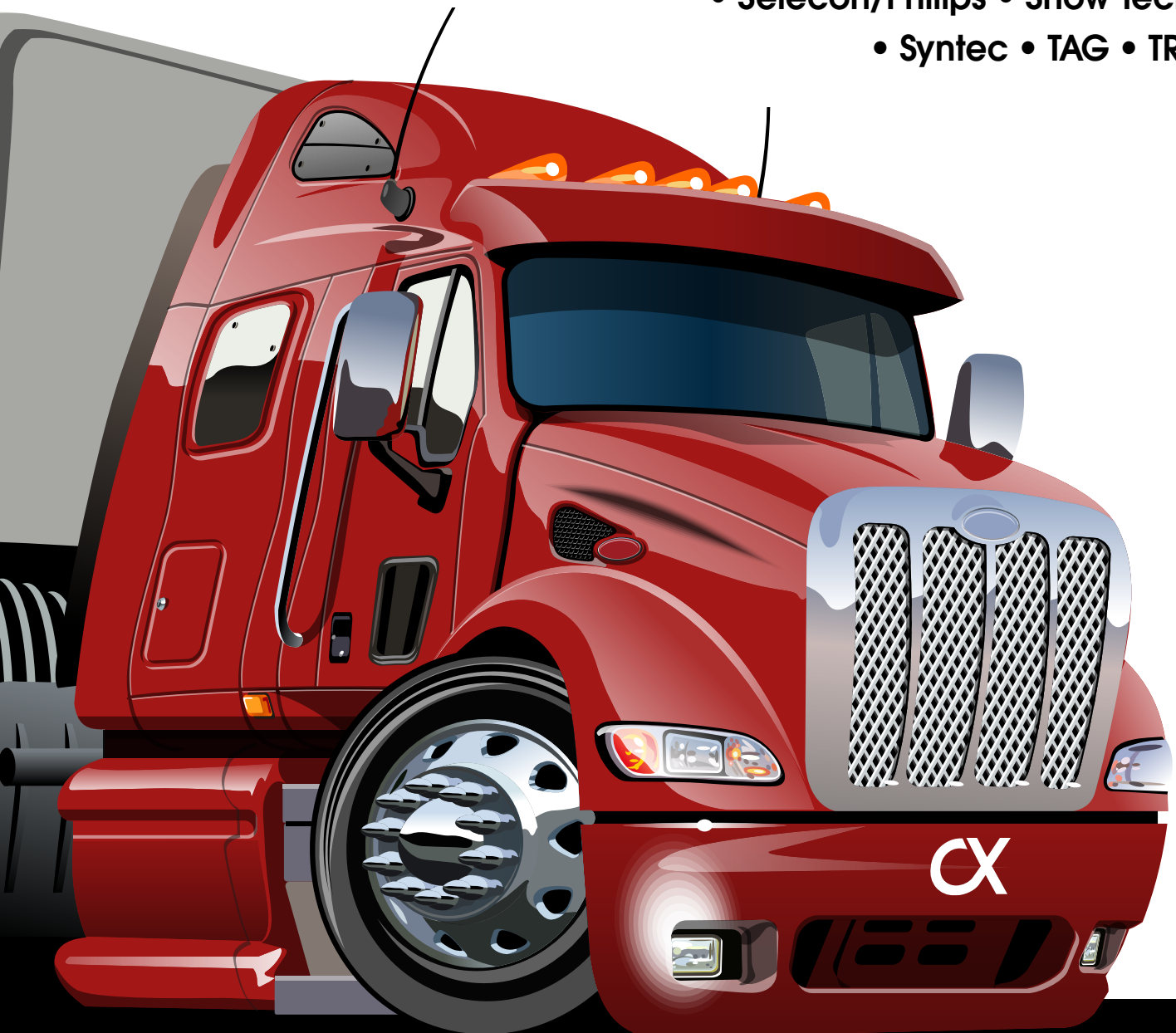
**ENTERTAINMENT CONTROL SYSTEMS**  
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**LOUD PA STACK DEMOS:**  
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**BRIGHT LED DEMOS:**  
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## **TOURING TRADESHOW!** Brand new gear from:

- Altronics • Amber • Australis • Bosch/EV • Cases.com.au
- DTS Australia • Galactic Music • Jands • KV2 • Lexair/Highend • LSC
- Meyer Sound Australia • NAS • Production Audio Video Technology
- Selecon/Philips • Show Technology
- Syntec • TAG • TRC • ULA



## EDITORIAL

8 Editorial

## NEWS

- 10 SMPTE - Holding secrets close
- 10 AUDIO SOURCE Steps Up as audio distributors
- 11 XXXX Island Man Cave Getaway
- 11 Amber Technology distributes VUE Audiotechnik
- 12 Riedel Add Staff, Patt 23, NAS & More!
- 13 Col West, Stage Safety Summit

## NEW GEAR

- 22 New Gear: Ross Video, Antari, Allen & Heath, Radial, Martin, QSC, Yamaha & so much MORE!

## FEATURES

- 14 LEGENDS - Meri Took, longevity & industry success
- 18 Riedel - ARIA Awards
- 20 Frontier Lighting - Organised & Tidy!
- 32 Entertainment Installations - One Stop Shop
- 46 Now Listen Here - Big Picture Focus

## GEARBOX

- 48 ELAN Audio RMU-01
- 52 Martin M2GO
- 54 SHURE VP89
- 56 BOSE LI Model 1S
- 52 Mackie DL-1608
- 64 Roland M-200i V-Mixer

## REGULARS

- 40 Install Advisor: TV Studios LED Lighting in TV
- 38 WHAT IF - Chain Hoist Control System Part IV?
- 30 The Mill Report - Half Inch Tape, One Inch Tap
- 68 Road Skills with Cat Strom
- 78 ACETA and transparency re TRADESHOWS
- 76 Event Safety Alliance - New Model WHS Act
- 81 Duncan Fry



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# 14

LEGEND  
Meri Took

# 68

ROAD SKILLS  
with  
Cat Strom



# 48

ELAN Audio  
RMU-01

# 52

Martin  
M2GO



# 18

Riedel  
ARIA  
Awards



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**CX78 FEB 2013. ISSUE 78 . ONLINE EDITION****SUCCESS IN AV**

Later this year I'm hosting a Case Study at ENTECH, called BOOM TO BUST - SUCCESS IN AV.

I've analysed and reported more failures than a North Korean missile test. The case study is a journey from inspiration and ideas, through a start up business, success and then enduring the slow cancer of failure.

Our industry is loaded with freelancers who have a go, and acquire equipment to become business operators. Some of them become multi million dollar enterprises, buy a Porsche and live beside the water. Most do not.

The Case Study will be an intense hour of pleasure and pain.

Recently I visited a batch of AV firms and while sitting in the airport lounge, bothering the sommelier, reflected on the signs of success. Some are straight forward – when Neale and Caroline Mace tell me (in this issue) they are successful in their Gosford based business Entertainment Installations, I know they are right. The Porsche outside isn't a boast. It's a reward.

**40 YEARS**

This March I celebrate 40 years in the industry. I've made and lost several fortunes which seems to be the scorecard for many entrepreneurs. It was March 1st, 1973 when I registered Zapco Lightshow and opened a bank account.

At the time, a cheque book of 200 cheques was a status symbol. I had business cards, a brief case, and a room at the back of a hippy share house in Surry Hills. I put a little advert in Go Set magazine, offering a \$15 lightshow. One of the first guys to ring me was the late and great Johnnie O'Keefe, who needed lights for his daughter's birthday party.

On March 1st, I'll drop an acid tab and call Steve Devine.

**PPSR BITES**

Last year a new and bothersome legislation called PPSR (Personal Property Security Register) came along to add more angst, and it has already created problems for wholesalers who previously relied on retention of title when selling stock on credit. With the Billy Hyde collapse came some high level claims that proved the PPSR hasn't been tested for failures of that kind.

Later, Jackson Rare Guitars went into liquidation, taking \$800,000 worth of consignment guitars from angry owners. At presstime, the fate of the guitars was unclear, but the likely outcome was an auction where the owners would line up as creditors for a small return, if any. Again the PPSR loomed because it became apparent the guitar owners who consigned their axes should have registered them with the PPSR. Not one of them knew about it beforehand, but judging by the 140 comments on cxmagblog, they sure do know now.

The reason for the PPSR mentions above? It can strip a business of its assets, if for example you rent equipment long term into a club that goes broke. Unless your equipment is properly registered – the paperwork needs to be technically very correct – a liquidator can seize and sell.

Spare a thought for all those small business owners out there. It seems to be getting harder, faster, to stay afloat – let alone make a profit.

- JULIUS

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# NEWS

## CX INDUSTRY NEWS

### SMPTE HOLDS SECRETS CLOSE

#### Where does the money go?

**As the Australian SMPTE convention heads for a July showing at Sydney's Convention and Exhibition Centre, questions remain unanswered as to its opaque financial structure in Australia. SMPTE is a successful trade event, with more than 100 exhibitors paying well over one million dollars to show their wares.**

For almost twenty years, the Australian Section of SMPTE has steered the convention, staging important technical sessions and advancing the cause of standards in broadcast and film. The Section comprises local members who pay their dues to the American office. Many members volunteer valuable time.

Held every second year, the SMPTE Conference and Exhibition provides funding for the greater SMPTE organisation, an American incorporated entity.

But these funding arrangements appear to bypass the Australian Section, which refuses to discuss the matter. SMPTE in Australia is a registered business name of Expertise Events, the commercial operator that takes the risk and runs the biennial event. The website SMPTE.com.au is also registered to Expertise.

CX asked SMPTE Australia Section Chair Ian Courtney Jeavons-Fellows how much money the trade show generated for SMPTE, and where it goes. He said he would get back

to us – and didn't. SMPTE Director, International Sections John Maizels directly refused to answer questions about SMPTE's Australian Trade Event management.

CX then emailed these questions to all Australian SMPTE managers, and SMPTE HQ:

1. How are the revenues from the Australian event managed? How much revenue is generated after costs?
2. How much revenue is returned to Australia, and how it is used?
3. How is the management of the SMPTE trade show in Australia reviewed, to ensure best outcome and return for members and for trade exhibitors?
4. Has the Australian event management ever been put to tender, and if so, when?

SMPTE refused to answer the questions, instead a response came from Barbara H. Lange, the Executive Director of the Society of Motion Picture & Television Engineers in the USA. "As with any business, SMPTE does not divulge business-confidential or contractual information."



### AUDIO SOURCE STEPS UP

**West Australia is a unique market, four hours flying time from the East, and closer to Asia than most of Australia. CX visited Audio Source in Willetton recently, to check how Michael Chapman was going. He bought the business from founder Ian Ross almost three years ago.**

They distribute audio, thus the name. Mainstay business comes representing Electro Voice and Bosch, along with ARX and all TRC lines. Amphenol, Fitness Audio, Penn Elcom and Samson lines from Electric Factory makes a diverse range.

Michael was looking for a business to buy, so he came from outside of audio and has successfully applied a business perspective – while learning the unique ropes of pro audio.



AUDIO SOURCE  
MICHAEL CHAPMAN (L)  
AND  
SCOTT GOODBY

His colleague Scott Goodby started with Ian Ross, and provided transition. They have developed an excellent website.

## STAGE & AUDIO AT XXXX ISLAND

XXXX Island is billed as the ultimate bloke's getaway destination; an island created by a beer company specifically for beer lovers.

XXXX Island is 15 kilometres off the Capricorn Coast at the southern end of the Great Barrier Reef. Formerly known as Pumpkin Island, it's been recently leased by beverage company Lion who have naming rights and exclusive use for the next three years.

Currently the only way to get there is through winning competitions run by the beer brand, which it plans to hold regularly over the life of the three-year island lease.

**XXXX Island** features the type of creature comforts you'd expect, including specially fitted-out cabins such as the fishing shack, the footy shack and the larger-than-life campground; a man-cave filled with bits and pieces to keep guests busy; and other small ingenious touches including a fishing lure vending machine and keg cookers to grill up the catch of the day.

Then there is the island's very own custom-built 'loo with a view,' a toilet positioned on one of the highest points of the island to ensure users can enjoy all of its scenic glory whilst on the so-called 'throne'.

"This is not Club Med – it's more Club Shed. We're not

offering up a five star resort, but rather one of the most perfect places on earth to simply kick back with nature and enjoy a beer with your mates," said Anna McMillan, XXXX Marketing Manager.

Rockhampton's Stage & Audio were lucky enough to win the audio install gig in the bar.

Head Technician Aaron Buchholz had to drop tools to go over and do a speedy site inspection. Fortunately he had recently returned from a trip to Phuket, Thailand, where he noticed Harman products in nearly every beach front bar.

"I figured that if these products can put up with the harsh conditions such as salt and unstable power, then surely they would be a premium choice for **XXXX Island**," he reasoned. Aaron did the quote for a JBL / Crown / dbx combination, and won the gig.

## AMBER TECHNOLOGY ANNOUNCES VUE AUDIOTECHNIK

Newly formed loudspeaker manufacturer VUE Audiotechnik has appointed Amber Technology as exclusive distribution partner in Australia - and joins CX Roadshow.

VUE Audiotechnik was launched in March last year by Jim Sides - former Meyer Sound Germany CEO and Apogee Sound co-founder, and Ken Berger - co-founder and former CEO of EAW.

Sides and Berger joined forces with veteran designer Michael Adams, who's work has led to industry-defining products from QSC, Yamaha and JBL. VUE Audiotechnik & Amber Technology will be showing three of the company's latest loudspeaker families at this month's **CX Roadshow**. The new h, a and i-Class systems contain purpose-designed components, enclosures, and system electronics.

The flagship h-Class full-range system has VUE's proprietary, beryllium-based compression driver with pure Truextent beryllium. Beryllium delivers better sonic performance than both aluminum and titanium thanks to an extremely

high stiffness-to-mass ratio, which dramatically reduces mechanical deformation (breakup), and shifts resonant frequencies above the audible range. The net result is a more defined high frequency output at higher SPLs than more conventional materials.

All h-Class systems feature active onboard electronics with system-optimised amplification and DSP for each driver and cabinet combination.

Amber Technology Head of Product Management Leon Hart told **CX** that "the addition of VUE Audiotechnik loudspeaker systems complements our already extensive portfolio of products for Live Production & Commercial AV applications and enables us to design complete system solutions for our customers and our network of value added resellers and systems integration partners."



## RIEDEL ADD STAFF



Riedel Australia has recruited two new team members to support its growing operations. Jason Owen, formerly the General Manager of Governance and Logistics, joins the team as a Senior Projects Engineer. Anke Krampe has also transferred from Riedel HQ in Wuppertal, Germany, as an Office Administrator.

JASON OWEN



ANKE KRAMPE

## PATT 23 LIVES AT TAMWORTH

Never one to miss a chance to be different, lighting director Colin Baldwin rolled out some 1950's technology at the recent Toyota Star Maker event in Tamworth. Hired to design and manage production, Baldwin rolled out some of his vintage Strand Pattern 23 profile spots. One is pictured here, lighting a contestant.



## NAS ADD HELMOT

Glenn Helmot joins National Audio Systems as Consultant Liaison.



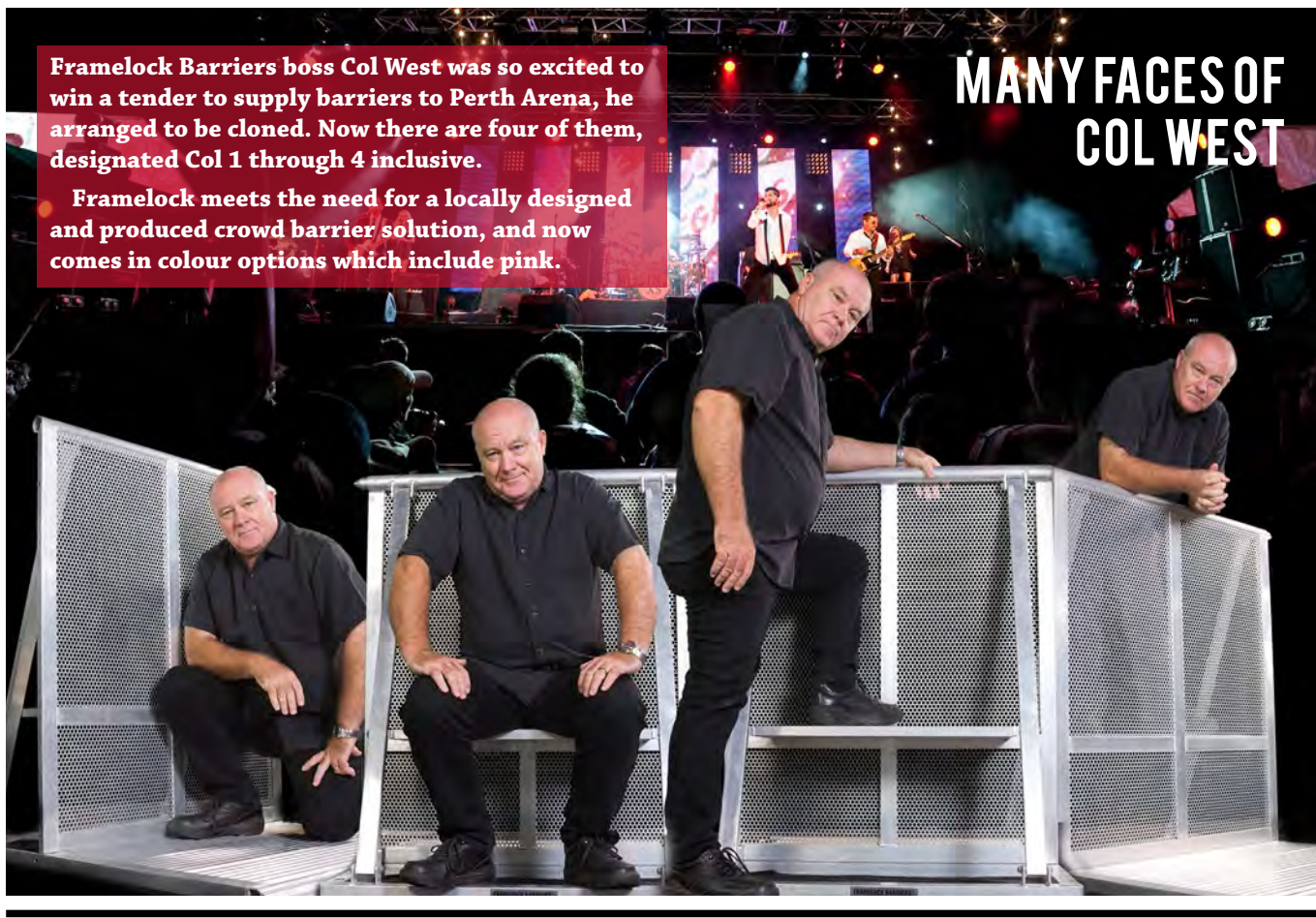
The position was created to provide a resource for consultants, architects, designers, specifiers and installers. To be the point of contact for providing appropriate technical and commercial advice, together with practical application engineering support for the commercial audio and professional audio products that NAS represent.



FrameLock Barriers boss Col West was so excited to win a tender to supply barriers to Perth Arena, he arranged to be cloned. Now there are four of them, designated Col 1 through 4 inclusive.

FrameLock meets the need for a locally designed and produced crowd barrier solution, and now comes in colour options which include pink.

## MANY FACES OF COL WEST



## STAGE AND EVENT SAFETY SUMMIT AT ROADSHOW

CX and Live Performance Australia are hosting a national safety summit for the live performance industry in February. Held in the main six capital cities, the Summit will update the industry on new Industry Safety Guidelines, and provide a forum to discuss issues.

Industry Safety is a hot topic, as self-regulation gives way to properly formalized binding Guidelines. The process started at CX Roadshow 2012, where a Safety conference identified issues. An industry meeting was then held at ENTECH in Melbourne in July, from which a Working Party was established by LPA to structure the Guidelines.

The Working Party includes representatives from Frankston AC, Jands, Staging Connections, Adelaide Festival Centre, Arts Centre Melbourne, MTC, Arup, Brisbane Festival, Avertrisk, Empire Theatre, SCEC, NIDA and Showtech Australia amongst others.

Issues to be discussed include whether the industry

DAVID HAMILTON,  
LIVE PERFORMANCE  
AUSTRALIA



wants a Code Of Practice; latest developments in WHS, and practical issues for industry people.

Attending the Summit counts towards Continual Professional Development, and a Certificate is issued for those who attend.

**Register at [www.cxevents.com.au](http://www.cxevents.com.au)**

## Short Technical Courses in July



Juliusmedia and The Concourse (Chatswood) have partnered to deliver short sharp technical training courses within Sydney's newest performing arts centre. These new CONCOURSES draw from a decade of training experience at Juliusmedia and take advantage of the latest technical equipment installed at Concourse. Concourses are for people interested in developing skills for live production in theatre and venues. Concourses are INDUSTRY ACCREDITED.



Stage Lighting Basics  
Mon 1, Tues 2 July  
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# MERITOOK

"You're only as good as your last gig"

By Mark Taylor



**One of the perks of this job is that I get to interview people who I truly admire. Meri Took is looking great after 35 plus years in our industry and his business, Staging Rentals & Construction Services, is powering after 22 years. If you're looking for inspiration you don't need to look much past Meri Took.**

No serious event manager would not have Staging Rentals helping out on the gig. The business has a strong presence in 3 states and employs 35 full time staff. Then there's the cast of thousands employed by the separate business: Stagehands, which supplies the balance of the labour required to make it all happen. SR makes everything in-house. That's been the model and it continues to be so.

Meri started life as a roadie on the Bob Dylan tour at the Sydney Showground in 1978. He made more money in 5 days than in 6 months being a percussionist in a band. It was a steep learning curve which saw him touring in the early days with Jands doing lighting on shows for the likes of Kiss, Elton, The Police and Elvis Costello. Costello gave him his first ticket out of the country and shortly after he was crew manager on Neil Young's European tour for the album 'Trans'. He went back to California and stayed on Neil's

property and 6 weeks later the call came from INXS. INXS were going to support

The Kinks tour as their first album was ready for the US market. Meri's job was to wrangle a decent production for our boys. Typically support acts get a token offering of the real production but with Meri's help INXS blew The Kinks off the stage.

Meri had made contacts Stateside and an Australian mate called him saying that Apple wanted to launch the first Macintosh in Hawaii. What to do? 1982 and no movers. BTW it's in 4 weeks time. They presented their plans and a budget to Apple who wrote a cheque on the spot.

The only problem was that they didn't have a bank account...

Meri came home in 1983 and started Production Techniques with Greg Volich. It was the first ever technical production management company without any gear. PT was groundbreaking and it just went off. They did endless shows with the top producers of the day, including the Bicentennial Wool Collection for Rick Birch, and the Bicentennial Concert for Kevin Jacobsen, and a training Jet simulation for Qantas.

The only thing missing was the business acumen. PT fell apart in 1989.

Production Management is still high on Meri's agenda. He's just been PM for the 16th year in a row for the Schools Spectacular which runs 3 sell out shows over 2 days at the Entertainment Center in Sydney. I sat in for the Saturday night crew briefings and show.

Everything ran like clockwork. The sets, the lighting, the



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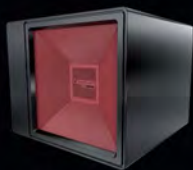
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ahead. It had to grow organically. Bad debts were not tolerated; good return customers were welcomed with open arms. Simon Lock came to us and needed a deal for the first Fashion Week. We've done every one since it started. The fashion industry couldn't really afford it but we manage to pull it off. Six years ago we opened in Melbourne and Brisbane because our customers wanted that. Our service is the thing. Every year we do a customer survey and ask them "what can we do better?" AllySTAGE and GloBAR are great examples of listening to our customers.

**MT:** Have you ever woken up one morning and said to yourself "I don't want to do this anymore"?

**Meri:** Absolutely. I sacked myself in March last year and left the business in the very capable hands of business partner David Comer, who has been Managing Director for a number of years now. I never wanted SR to be all about me. I've always wanted it to stand on its own two feet. I am still a Director and a shareholder and like to keep a close eye on things. It also allows me time to focus on shows. I'm doing my fifth National awards night for the Meetings and Events Association which should, in my view, be the best awards night that one could attend.

**MT:** Has it got tougher doing business?

**Meri:** The bubble burst in 88 - 89 after the 87 recession and the Bicentennial. The government really missed the mark to amortise on a business level after the Olympics. Then there was the GFC. The GFC cleaned out a lot of the small operators. It was a purge for the industry. We needed less event managers. You could either do it right or do it cheap. Do it right made it through the GFC. We're living in 'the new normal' now and we're in a new era of frugality. Everyone in the corporate world has to be accountable to the CFO. The big retailers are classic examples. Budgets went from half a million to 150k dollars overnight. Retail is still in big trouble but the bright ones are fighting back and winning driven by price and technically advanced products. Motor Vehicles are doing well and we've just had the biggest three weeks in the history of the business with three of the big manufacturers and many other jobs for other wonderful clients.

**MT:** Who do you look up to in the industry?

**Meri:** Peter Rix: he's a visionary event producer; Eric Robinson: the way he's shaped Jands and the manufacturing arm is outstanding; Tony and Greg Davies: Chameleon is a fantastic business; Garry Hackett: he saw the opportunity of in house provider and conquered; Michael Hassett: he's constantly ploughing new and wonderful product into TDC; David Atkins: he's still out there producing high end world class events. The Asian Games in Doha were amazing. Rick Birch: a similarly amazing visionary; Scott Wilsallen: technical excellence in a stratospheric area of operation and Tiny Good from Showtech placing us on the international events stage. Peter Milne is another man who I admire greatly. This industry has been blessed to have so many great business people who really believe in it.

**MT:** What's your credo?

**Meri:** If you say you're going to do something then do it. Don't compromise your personal integrity for the sake of quality or getting it right. You're only as good as your last gig.

audio, the video and the comms worked seamlessly and the thousands of kids involved got an experience they'll never forget.

**MT:** So what happened?

**Meri:** Peter Rix called me and wanted a PM for the Toyota Land cruiser launch at the Rod Laver arena in Melbourne. It was like 'Arabian Nights' on acid. We needed 1 kilometre of drapes to pull it off. I saw a massive hole in the market. Just around the same time the AETT [Australian Elizabethan Theatre Trust] and the Sydney Prop Centre went up for auction. I brought the best of every last drape. My last bucks went into the industrial sewing machine and the seamstress which would be the basis of the business.

**MT:** Is that how SR started?

**Meri:** Pretty much. The business was built by spending what came in making more stock. We co-habitated with set builder, Eagle Beach in the early days and when they closed it gave us the opportunity to get into set construction and custom builds. That now accounts for about half of the business and two thirds of that comes out of existing stock. We like to train our people and that accounts for a lot of the success of the operation.

**MT:** Did you have to borrow money to expand the business?

**Meri:** I wasn't going to borrow money to move the business

IT PUNCHES ABOVE ITS WEIGHT



*new*

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# Wireless communication for the ARIA Awards 2012

BY JIMMY DEN-ODEN

**The ARIA Awards highlights achievements in the Australian Record Industry, and it's the biggest music award show in Australia. It's a stage show which is broadcast live to air, so there's basically no room on the gig for failures of any kind. Coordinating such a show is a mammoth task, the backbone of which is a solid communication system.**

Not only do OB trucks need to communicate with camera ops, but also FOH people need comms to their stage based counterparts. Lighting folk need to call instructions for dome operators. Talent wranglers need to be told who to bring where and when.

When a person is based in a fixed location it's easy to provide them with a cabled comms pack or panel. The challenge with a show like the ARIAs is that so many people are on the move all the time, and this necessitates a wireless solution. CX sat down with Garth Wiencke of Gearhouse Broadcast, and Danny Riess of Riedel Communications to find out how they made comms work at the 2012 ARIA Awards.

Gearhouse Broadcast has provided coverage for many awards ceremonies in the past, and traditionally this has

been done using UHF systems with base stations. A typical UHF system could have between three and five duplex channels, and a couple more simplex ones. Users are given radios, and they switch to whatever channel is allocated to their department. If you needed to hear two channels at once, you got two radios. That was it.

This year, Garth elected to use the services of Riedel to provide an Acrobat Wireless system, which tied in nicely with Gearhouse's existing Riedel Artist comms systems. We asked Garth why he chose to use the Acrobat system rather than a UHF kit: "We've done big one-off awards shows, and discovered that the more flexible your comms system can be the better it is for your client. When crew like audio assistants or spot ops have the option to talk point-to-point, this allows the audio or lighting director to get on with their job undistracted. It provides a better broadcast outcome".

Acrobat runs in the DECT frequency band, so unlike UHF systems it doesn't require a lot of complicated spectrum management to be done by the user – it's self managing. I asked Garth if spectrum management came into the decision at all, and he indicated that while this was definitely a consideration it was really the flexibility and audio clarity which sealed the deal. Decision made, it was time to get on with making it happen.

Danny Riess from Riedel was dealt the task of designing, building, interfacing and running the Acrobat system. Alex Wong was comms tech for the Gearhouse kit, and the guys were assisted by Andrew Henderson, Andrew Parsons, and Annabelle Salamon (a TTOC graduate). Over the course of three weeks prior to the show Danny sourced gear from five different locations to build what would be the biggest Acrobat wireless system on record for Australia. Interestingly enough, Australia leads the charge in adaption and use of this relatively new technology. Danny told us "Riedel



AUDIO ASSISTANTS MAZ FORBES, BREIONNY JOHN, MATT HAYES



ASSIGNING IP ADDRESSES TO EACH BELTPACK AND ANTENNA

Australia is one of the largest suppliers of Acrobat systems throughout the Riedel worldwide network.” - Garth adds “I don’t know if it’s a cultural thing, but a lot of overseas clients ask for cabled systems”.

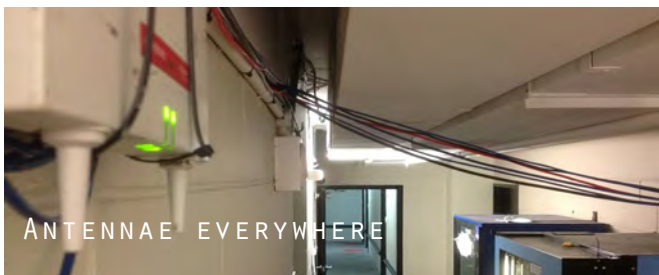
Due to the system architecture of Acrobat, the most important thing when designing a system is to know how many users there will be, where in the venue they will be based, and most importantly what the maximum concentration will be in each area. A Riedel CC-60 Acrobat unit sat at the core of the system, and this was interfaced via MADI to an Artist 64 port frame in the same rack with an additional Artist 64 port frame for extra panels, as well as three Artist 128 port frames across two Gearhouse OB trucks.

The CC-60 behaves a bit differently to the CC8 we reviewed some months ago. Whereas the CC8 has belt-pack selectable partylines, the CC-60 links to an Artist system and every attached belt pack is then treated as just another port. This means each belt pack can be configured to talk to a group partyline, or directly to another panel or pack, or even a combination of these. Another benefit is bandwidth saved when users need to listen to multiple sources at once “there’s no extra overhead since the muxing is all done in the frame” says Garth.

The Acrobat rack was located immediately backstage, and linked via fiber to Riedel Mediornet racks at the FOH position and also in the comms office in the backstage production office area. From each of these points (and at the Acrobat rack), POE switches distributed data and power to Acrobat antenna units in strategic locations. The whole system used 22 antennae linked up with about 300m of Cat5 cable. That’s not much cable considering the functionality of it all. Essentially the antenna system is all distributed over Ethernet, it’s just that one hop is done via fiber rather than copper.

“Do people still run copper backups for fiber?” we asked Garth. “Yes. How often are they used? Well, I better touch wood before I answer that”. This implication here is that today’s fiber systems are pretty solid.

Ordinarily on a comms gig like the ARIAs, each radio recipient would also receive a little laminate telling them what channel on the radio is for which department. Since Acrobat is built to allow direct communication between people as well as party lines, each belt pack was named according to whom it was attached. Because predicting who needed to talk to who was nigh on impossible, the key assignments on the packs were done as they were handed out to the recipients, and for the most part the initial programming held. Danny says “I think about 90% of the packs finished the gig with the same programming as that with which they started”.

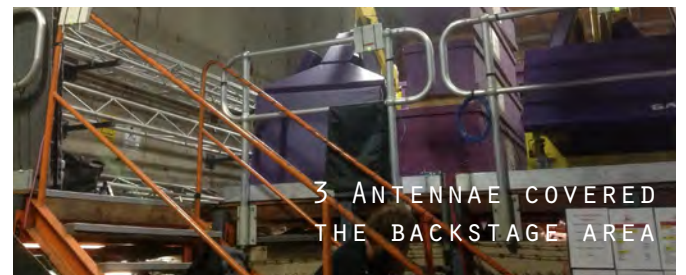


Because the Artist system can be configured from any frame (or “node”), this allowed Danny and Alex to both make changes to the configuration at once. Danny installed wireless access points in several locations, from which he was able to make quick changes using an iPad. Since the Acrobat antennae support up to 12 packs each, certain areas with higher numbers required multiple antennae. The web interface for the system shows a log of the number of times each antenna has hit 70% and 100% capacity. This enabled Danny to make antenna deployment decisions based on actual usage patterns rather than just predictions, translating to adequate headroom in all areas at all times.

As some crew will only ever need to listen or talk on a single channel, some UHF systems were still used. 96 of the originally planned 200 UHF units were deployed across four duplex and three simplex channels. Spectrum management was handled by Jason Owen (also from Riedel) and included not only comms, but also radio mics, IFBs, in-ears, and ENG crew requirements. Due to the lower than normal number of UHF radio channels used, the UHF system didn’t require any frequency changes and thus the time consuming task of re-programming 96 radios was avoided.

According to Garth, the biggest challenge with the Acrobat system is not actually in the deployment but in conveying to people the new options it gives them with wireless comms. Operationally “there was a plan B, but we didn’t use it”.

**Here at CX we call that a success!**



# FRONTIER LIGHTING

At Frontier Lighting in Belmont WA, tidy rules. CX were impressed at the order and methods devised by founder Jared Hawke. He explained that the WA market doesn't have tours that run as long as in the Eastern states, so he is doing just as much prep as anyone, for less return. His solution is to 'systemize' as much as possible. Our picture tour shows this!

Frontier has just taken shipment of 16 x Martin Mac Viper's



From left: JT (Production Technician), Dusty in the glasses (Factory Staff), Jared (Managing Director), Karl (Factory Supervisor), Terry (Production), Dan Hocking Missing From Picture (Production Manager).





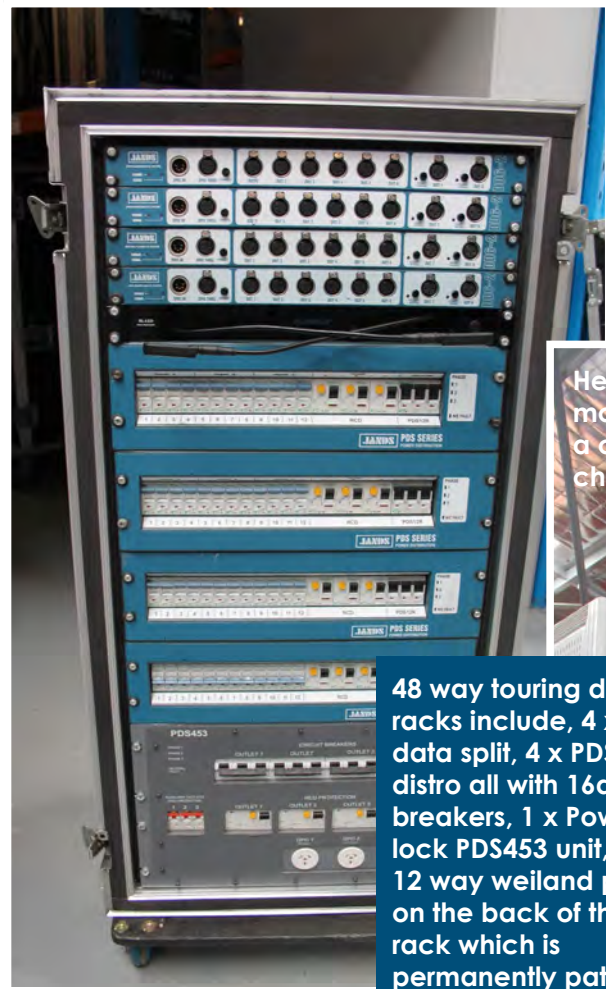
Back of custom made touring dimmer racks.



Custom made 8-way Atomics w/scrollers road case, 4 in the top in a tray pull out, then 4 underneath.



Clear-Com Tempest Wireless Coms Kit, It includes custom cut-outs for 5 belt packs, booster kit, Master Station, 6 x CC-95 Headsets, Battery Charger and 2 x Spare Batteries all in a custom made case for our use.



48 way touring distro racks include, 4 x DD6 data split, 4 x PDS12 distro all with 16amp breakers, 1 x Powerlock PDS453 unit, 1 x 12 way weiland patch on the back of the rack which is permanently patched.



Here's a neat way to pluck a mover from a case for checking!





**ROSS VIDEO CARBONITE 2**



Carbonite 2 is a new 2 MLE control panel based on the Carbonite family (2m & 2x) offering 16 source buttons instead of the usual 24/32. It is available to the user with 15 or 24 Multi-Definition SDI inputs and 9 internally generated sources.

Carbonite 2 can be configured with Carbonite+ and MultiMedia processing engines and includes the new ViewControl touchscreen production controller and LiveAssist Graphical User Interfaces.

**ANTARI SW250 SNOW MACHINE**



The Antari SW-250 Wireless Control High Output Snow Machine is designed to give realistic, high-volume snow effects with greater control and precision over the snowfall. It can output up to 320 ml of snow per minute, controllable via onboard DMX or a wireless transmitter.

The output is variable from 0%-100% and uses 1 litre every 5 minutes at max strength and has a tank capacity of 5 litres. It can be set on the ground or used with the included hanging bracket.

**ALLEN & HEATH ZED60 RANGE**

Allen & Heath have launched two additions to the ZED Series of small analogue mixers. Both are suitable for solo artists and small bands and aim to reduce size and cost with 60mm short throw but high quality faders.



ZED60 -14FX shown

The ZED60-10FX and ZED60-14FX input complements are 4 mono/3 stereo and 8 mono/3 stereo respectively with two of the mono channels offering high impedance jack inputs that can take a normal line level or a low level input from a guitar pickup. This means guitars can be plugged straight into the mixer without the need for DI boxes.

One of the stereo inputs can accommodate MP3/ CD players or keyboards via RCA inputs. Both mixers are equipped with configurable USB audio in/out which enables capturing a stereo recording at a gig or in the studio.

They also feature XLR main stereo outputs, internal power supply and detachable IEC cable, a flexible monitoring section with headphone and speaker feed outputs, and 16 digital effects developed from the iLive digital mixing system.



**KV2 SLIM LINE (SL SERIES) SPEAKERS**

KV2 Audio's new SL Series loudspeakers are less than 12 inches deep which enables the system to dramatically reduce the amount of floor space typically required for such high-volume, full spectrum sound. This makes the system ideal for tight theatre placement, club installs or discrete house of worship environments.

The SL412 and SL2.15 can be integrated either externally through simple wall mounting, suspension, ground stacking, or internally into walls and surfaces. They can be supplied with custom colors, grill templates and logos. A single yoke assembly with multiple fixed angle and fixing locations, provides a quick and cost-effective solution for simple suspension options.

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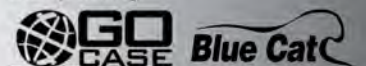
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## RADIAL SIXPACK 500 SERIES POWER RACK

The SixPack is a 6-slot power rack designed to accommodate all 500 series modules including older ones made by API. It features 1600 milliamps of current for more than 265 milliamps average power per slot. This lets you mix and match solid state and tube modules without concern about powering. The external supply also provides 48V phantom power for mic pre-amps. Protective circuitry in each slot safeguards the SixPack and other connected modules against malfunction or short circuits.

Modules may be patched in series using the FEED switch and stereo mated using the LINK function. Extra connectivity includes 1/4" TRS connectors wired in parallel with the XLRs for cross-patching and parallel processing. These are also wired in parallel to a set of D-Sub connectors for easy patching to and from the workstation. Two front panel XLR convenience jacks let you access channels 7 and 8 on the D-Sub or may be assigned to channels 1 and 4 to create a stereo channel strip.

## MARTIN MAC III AirFX

The 1500-watt MAC III AirFX is an extremely bright and versatile lighting fixture. Capable of projecting a dense, hard-edge beam with mid-air aerial effects, the fixture's optical system allows it to adjust from a tight beam to a radiant wash instantly for greater design flexibility.

Beam gobo projections can adjust along the entire zoom range for a diverse variety of mid-air looks. The MAC III AirFX maintains high efficiency throughout the entire zoom range with a fully linear zoom that gives no visible beam jump from tight to wide.

Super bright, the MAC III AirFX is powerful enough to cut through light from even the most powerful LED screens.



## ALCONS AUDIO QR24 LINE-SOURCE ARRAY COLUMN

The QR24 measures a mere 66cm / 26" tall in length, and is fitted with 4x 6.5" woofers and two purpose-built 12" pro-ribbon drivers. By using only 2 12" RBN drivers, the system's active frontal radiation is close to 90%. The resulting sharply-controlled vertical dispersion offers an SPL-independent, intelligibility over distance, without the necessity of DSP-based beam-shaping.

Due to its modularity, throw and low frequency, directivity ("near field") can be increased just by extending the array length; multiple individual mid-high frequency lobes can be made, by using the QM low-mid fill columns.

The projection pattern in the horizontal / non-coupling plane is 80 degrees (-6dB) and in the vertical / coupling plane, it is 6-degrees (single column). Each purpose-designed 12" RBN driver has a peak power handling of 2.000W (200 msec), creating a virtually infinite system headroom of 4.000W from 1kHz up. Together with the high acoustical sensitivity, the system enables high-SPL sound-reinforcement performance.

The QR24 is powered and controlled by the Sentinel amplified loudspeaker controller. Through the integrated processing and feedback, the Sentinel offers QR24-specific drive processing with optimal response, reliability as well as being user friendly.



## ARX iSWITCH SUB TO REFERENCE SERIES

ARX Systems added the new iSwitch SUB to their Reference Series of signal processors. The iSwitch SUB is a piece of test equipment, being able to individually send a choice of two program sources to up to 12 Stereo pairs of powered loudspeakers and a choice of 4 mono powered sub-woofers.

The iSwitch SUB allows an instant comparison of complete powered loudspeaker systems making it suitable for demonstration or batch testing applications precluding the requirement for re-patching mid demonstration or testing.

Features include, a front panel MUTE ALL switch and associated flashing red LED allowing users to mute all audio when answering questions or discussing comparisons and results without losing level settings. A front panel Mini Jack (3.5mm) input allowing easy connection of apple & other portable media devices. High headroom, ultra low distortion & low noise performance. All rear panel 6.5mm jack inputs and outputs are electronically balanced.



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CL5 72 mono mix channels, 8 stereo mix channels



CL3 64 mono mix channels, 8 stereo mix channels



CL1 48 mono mix channels, 8 stereo mix channels

“This is the best console Yamaha has ever produced”

- Jimmy Den-Ouden, CX Magazine, November 2012

“Sonically the system is the best that Yamaha has offered.....as good as any digital console currently available”

- Trevor Cronin, Audio Technology, August 2012

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## Chroma-Q Inspire LED HOUSE LIGHT

The new Chroma-Q Inspire LED house light is a powerful multi-purpose creative lighting tool that utilises some of the core technologies found in the Chroma-Q Color Force range. The Inspire provides a choice of whites, soft pastels and bold saturates - all from one fixture.

By incorporating industry standard DMX-512 control, the Inspire is able to integrate with an existing DMX infrastructure and can be controlled by any DMX supported lighting controller. With fully homogenised colour mixing and a choice of three different lens options, the Inspire provides a selection of stunning mixed colours and 'true' whites, with no unsightly colour separation shadows. It also features an energy-efficient compact LED design providing reduced maintenance and running costs.



## HOLOPHONE LIVE SOUND MICS

Holophone is introducing a line of single-channel stage and studio mics. The new Super C handheld supercardioid condenser is the first in a series of customizable performance mics. Combining ruggedness, low handling noise and ergonomic comfort, the Super C features the same proprietary capsule technology employed in Holophone's surround microphones, including the H2-PRO mic used in broadcast, concert sound, film and music recording.

The mics feature a design that allows users to quickly customize a mic's appearance on the fly. Each microphone's casing, wind-screen, and grille can be instantly changed to any of a wide range of custom colors, providing unprecedented on-stage/on-camera visual versatility, as well as a whole new level of hygienic appeal.

## DIGICO SD5 DIGITAL CONSOLE

The SD5's worksurface is a low noise, heat dissipation worksurface benefiting from Hidden-til-lit (HTL) technology, it has five digitally driven full colour TFT LCD screens, three of which are touch sensitive. There are also two interactive dynamic metering displays (IDM) and instant access 'quick select' buttons which are positioned down the left side of the two channel screens for fast and intuitive navigation.



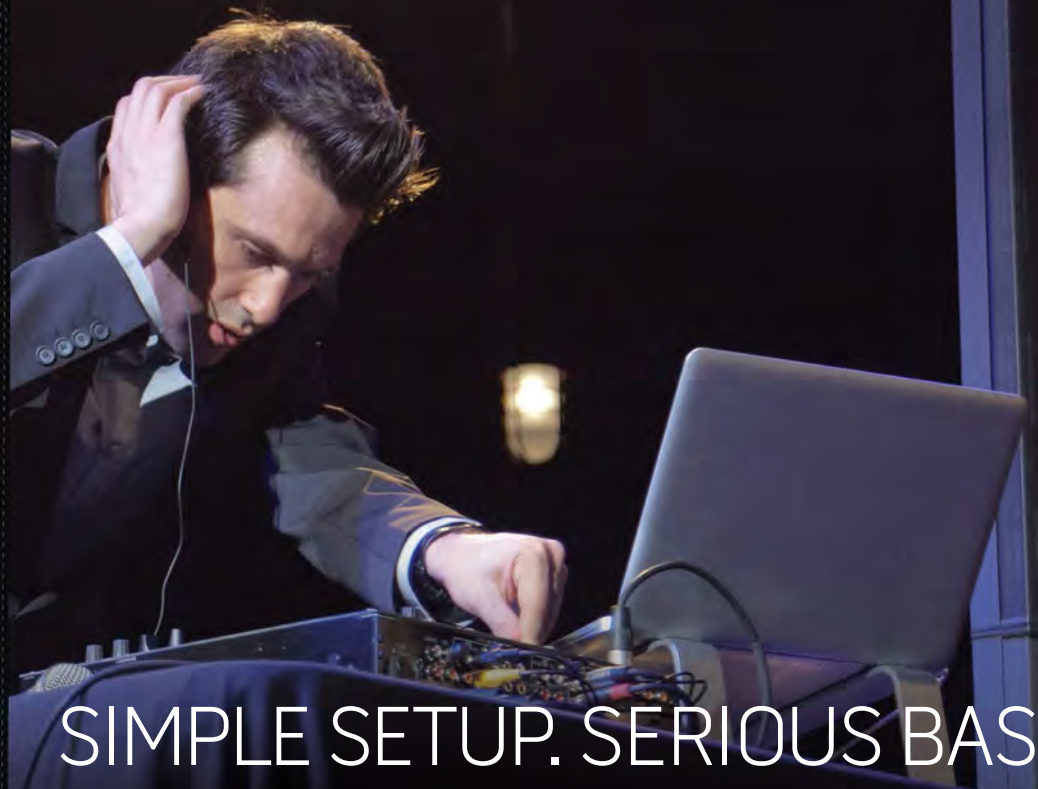
As standard, the SD5 comes with a 2Gb fibre optic system capable of running 448 channels of I/O at 96kHz, plus 56 console-to-console tie lines, allowing connection to up to 14 of the SD-Series racks. There are three redundant MADI ports and local I/O includes eight microphone inputs, eight line outputs and eight AES I/O (mono).

The SD5 has 124 input channels; 56 configurable busses, plus up to 5.1 master; a 24 x 24 fixed matrix; DiGiTubes on every channel, buss and output; 24 assignable Dynamic EQ; 24 multiband compressors; 24 stereo effects; 32 Graphic EQ; 10 x 4 (40) RGB backlit macro buttons; plus the ability to add a Waves upgrade.

## DOUGHTY ENGINEERING BABY QUICK TRIGGER CLAMP

Manufactured from high tensile aluminum, the Baby Quick Trigger Clamp from Doughty Engineering is designed specifically for smaller truss sizes, adjustable to diameters of 1" to 1½". It has a safe working load of 88lbs (40kg) and measures 1" (25mm) wide, weighing .66lb (.30kg). It is available in black or silver finishes.





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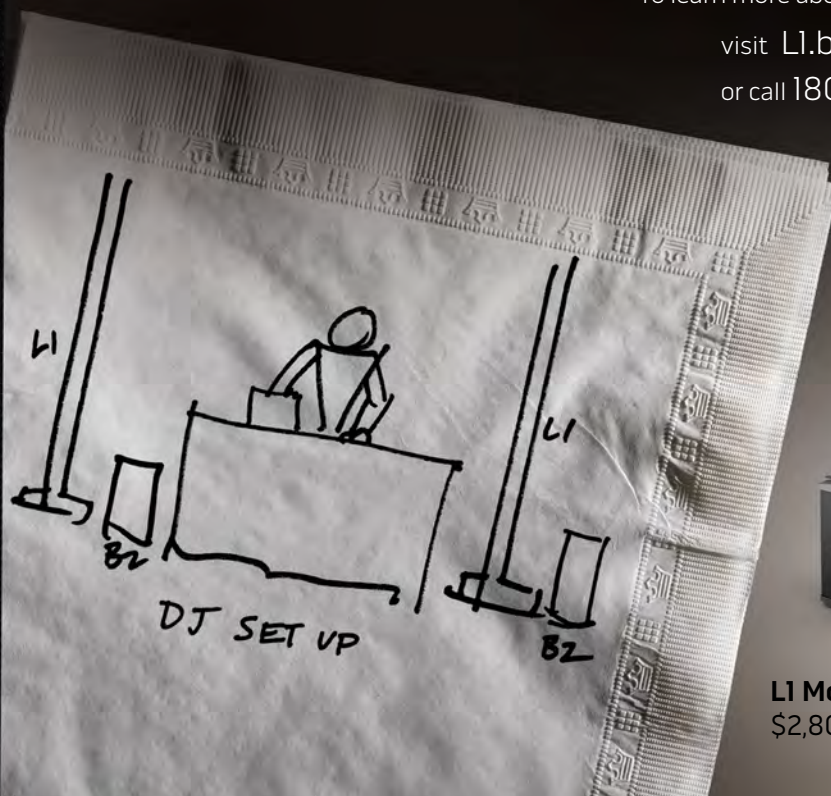
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## ELATION PLATINUM SPOT LED PRO

The Elation Platinum Spot LED Pro is the next generation of Elation's Platinum Spot LED moving head. New features on the fixture include a motorized 15°-34° zoom and a built-in EWDMX wireless DMX receiver. When used with an Elation EWDMXT wireless transmitter (sold separately), it can receive DMX signals wirelessly from up to 3,000 feet away. A 140-watt LED moving head spot, it produces an output comparable to that of a 250-watt discharge fixture. The Platinum Spot LED Pro includes: eight dichroic static colors; 14 gobos (seven rotating/indexing, seven replaceable static; a three-facet rotating/indexing prism; motorized iris; motorized focus; variable speed shutter/strobe; and smooth 0-100% electronic dimming. It features three DMX operational modes (14/16/21 channel), and both 3-pin and 5-pin DMX connectors.

## BEHRINGER S16 DIGITAL SNAKE

The S16 features 16 MIDAS-designed digitally programmable, remotely controllable mic preamps, as found in the X32 console. Additionally, S16 offers 8 analog, servo-balanced XLR line, as well as 16 ADAT digital outputs that can be used in splitter mode and/or stand-alone multi-core applications.

Dual MIDI ports provide bi-directional control of devices between the stage and FOH, while dual AES50 network ports allow up to three S16s to be cascaded - without the need for an external router or hub. ULTRANET connectivity is also included for use with BEHRINGER's P16 personal monitoring system.

Other features include a dedicated monitoring/control section that allows the user to select one of the 16 inputs, 8 bus outputs or P16 output streams, and listen via headphones for instant line checks. Once set, all configuration settings can be locked at the console for total system security.



## SWITCHCRAFT SCREW TERMINAL 3 POLE E SERIES XLRs

The E Series features 3-pin contact, male and female connector that fit in the same panel cut-out. There is a choice of 5 terminations, solder cups, conical spring solder terminals, straight or right-angle PC terminals.

Switchcraft introduced a screw terminal option for the 3-pole E Series XLRs to allow for the change of connector where it is not possible to use a soldering iron.

Inserts and housings can be specified to maximize configuration possibilities. The insert lock detent resists disassembly from shock or vibration during normal handling and transportation and through-the-shell ground connection and all-metal shells provides shielding effectiveness.

Silver and gold-plated contacts are available and the rugged metal shells have black or satin nickel finishes.

The E Series replaces the Neutrik D Series and is compatible with Switchcraft Q-G, QGP and other connectors with similar configurations.

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**QSC**  
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**LOUDSPEAKER LINE**



QSC Audio Products has launched its Acoustic Performance line of two-way, full-range loudspeakers for installed sound reinforcement applications that require higher SPL. All feature 3-inch voice coils, high power capacity compression drivers and high-output

woofers to deliver full bandwidth reproduction.

Acoustic Performance models can be used in passive (full-range) mode to minimize amplifier channel count or bi-amp mode for greater control and performance. To further enhance performance, bi-amp and full-range tunings using QSC Intrinsic Correction techniques are available for Q-Sys and future QSC products.

All models feature M10 mounting points for deployment via eye-bolts as well as mount points for an optional yoke bracket. The AP-5122m multi-purpose enclosure features a 40-degree angle, ideal for floor monitor use, and a pole cup for deployment on a loudspeaker stand.

**YAMAHA Ri8-D AND Ro8-D**  
**INPUT/OUTPUT RACK UNITS**

Yamaha Commercial Audio Systems new Ri8-D and Ro8-D input and output rack units are 1U rack mount units that use the Dante audio network protocol. They are designed to provide additional options for flexible system design and implementation. In their CL series, Yamaha separated I/O hardware from the mixing console. The Ri8-D and Ro8-D units increase the number of inputs and outputs available. In addition to working with CL Series components, they can be used with a Dante-MY16-AUD card(s), new Rio units and a Yamaha PM5D to create a 96kHz system. The Ri8-D head amplifiers can be controlled directly from the interface of the M7CL, LS9, or other compatible console.

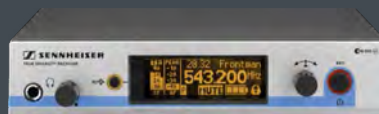


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## Half Inch Tape, One Inch Tap

BY ANDY STEWART

Summer holidays have come and gone, and the year ahead is looming large. One piece of studio equipment I never thought I'd buy for The Mill over January was a one-inch fire hose. I'm on a rural property surrounded by farmland and its purchase was long overdue. It's a Netl. Not quite a Neve or SSL in quality, but it does the job. It's the only piece of studio equipment I've bought that I never hope to use. Not sure how the tax department will react to it in the debits column... we'll see I guess.

### **SMOKEY HAZE**

In the last few weeks I've been taking a break from mixing, and what does a mix engineer do when the console's turned off and the sun is shining? Solder.

Yep, that's right. I've been rewiring parts of the studio and finding new ways to burn myself. The studio patchbay was starting to drive me nuts. Over half the labels on the patch panels described equipment that hadn't been in the racks for years in some cases, so the time had well and truly come for an overhaul. It's a nice feeling now to look over at the studio's nerve centre and see clarity and refinement rather than confusion and mess.

I hate messy studios, and in particular, messy patchbays. They're the key to good noise specs and phase coherence – connect old leads to a new device and there's more than a slim chance that the old wiring will cause the new gear to hum, buzz, or be flipped out of phase. Now that the system has been rearranged and rebuilt, and all the dead wood trimmed back, I can't believe I tolerated it for so long. Crazy. Less and less people have patchbays these days of course, but for those with analogue equipment, this humble router is the most powerful tool in the shed.

### **HALF-INCH MUSCLE**

The standout new recruit at The Mill is without doubt the Studer half-inch valve two-track tape machine. It's a stand-out mainly because, well... it just stands out! Like all Studers, it's huge, weighs a tonne and looks very impressive. I have three others in the control room with me, but in the last couple of years they've stood mostly idle, collecting dust and magazines and the occasional daddy long-legs. I haven't gone off mixing to tape as such, but somehow it's just become mostly irrelevant.

But with the arrival of this new (very old) machine, I've been re-inspired by the sound of whale oil, plastic and metal oxide rolling past a magnet – AKA tape. I must mention here that I don't own the machine – it's been parked at The Mill indefinitely by a friend of mine, so I've had no expectation that it would sound any good, nor any rose-coloured bias towards it.

## ROLLING... I THINK

The thing is without doubt the clunkiest, most unnerving and truly baffling machine I've ever had the pleasure of lacing tape around. It took me a good 20 minutes just to turn it on when it first arrived, and when I finally managed to roll some tape, the transport mechanism sounded like a rusted steel wheelbarrow hauling a pile of bricks down a cobblestone path! It feels like it could break every time you touch it, and when you hit play or record you just stand back and hope for the best.

It's like it's been made in a back shed by the good folks from Playschool. Incredibly, it uses things like a standard 60 watt incandescent light bulb to supply power to the take-up motor; the natural increased resistance of the filament providing rapidly decreasing voltage as the thing heats up, after the initial jolt that's required to get the reels moving. My tech Rob Squire reckons these bulbs are now illegal in Australia so I guess the next thing I'll have to do is scour the black market for some 60W bayonets.

## WIRED FOR (NO) SOUND

The other thing about this machine that drove me insane for some time was the fact that the standard XLRs on the back panel of the old girl are wired back to front – ins are outs and outs are ins. This was apparently the standard in Europe at the time of construction... the Bronze Age (or 1961 to be precise). Needless to say I couldn't get a peep out of it initially; couldn't get it to play back or record, even though I'd been



assured it was working perfectly. But the sound! When I finally got a mix onto it, the sound that came back was truly amazing: like my mix had done intensive weight training over summer and come back for the first round of the football season 20 kilos heavier. The mix sounded strong, confident and powerful... and so quiet. The noise floor was super low... no tape hiss at all really.

"Bloody hell, can that sound really be coming back off that old thing in the corner there?" I thought to myself. Seriously, I had to go over and hit stop, and hear the song grind to a halt before I was truly convinced.

What a machine this Studer is. I love it... just hope it keeps working and that the globe doesn't blow before I can get down to the bric-a-brac store for spare parts!

**Here's to 2013!**

Andy Stewart runs  
The Mill in Victoria,  
and is happy to take donations of  
the 60W incandescent  
variety - bayonets only please.  
Contact him here:  
[andy@themill.net.au](mailto:andy@themill.net.au)



# ONE STOP SHOP

## HOW ENTERTAINMENT INSTALLATIONS STAYS UNDER THE RADAR

NEALE AND CAROLINE MACE ARE WELL KNOWN IN THE CONCERT PRODUCTION BIZ AS ONE STOP PROVIDERS - TRUCK, LIGHTS, SOUND AND SOME OTHER BITS LIKE BACKLINE. WORKING FROM GOSFORD, NORTH OF SYDNEY, THEY OWN TWO REASONABLY LARGE WAREHOUSE UNITS, ALONG WITH A SMALL FLEET OF TRUCKS - PLUS A 45' TRAILER.



Out front is Caroline's Porsche. At home in the garage of the luxury unit at beachside Terrigal is Neale's Ferrari. These, along with the fully coincidental presence of their accountant (talking to them about the latest tax and super nuances) on the same day CX calls, shows they are doing something very right.

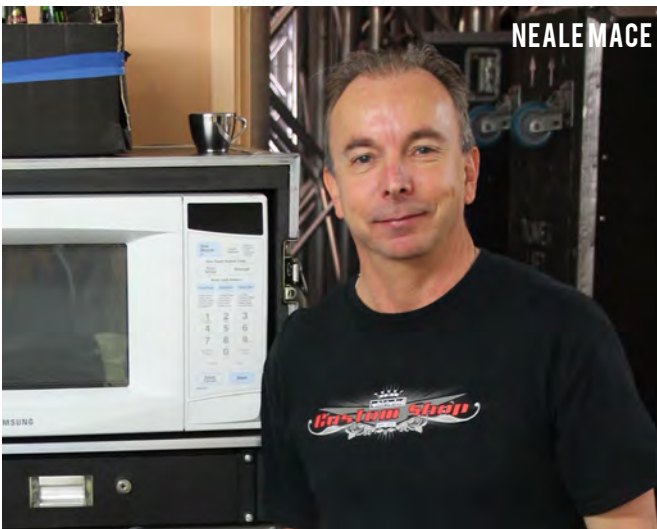
Entertainment Installations grew from a D.J. business that Neale ran on the central coast in the 1980's, with installations soon becoming more mobile and then a truck allowing touring production. They started after the boom days of rock and roll, where almost anyone with a pulse and access to money could put a touring rig on the road.

Unlike many businesses, this one is a happy partnership – they have been married for more than 25 years, and work at opposite desks. "This is how we quote tours", Neale says. "I look after the operation, Caroline looks after the money". "We actually get on well with each other", says Caroline. "The new crew get told that if we are swearing at each other, it's just normal. It doesn't bother us!"

Working together is what they do – when they started out with the DJ business, they took a gig delivering newspapers in Woy Woy – along with the terrific 2am start time. For 80 bucks a week.



CAROLINE MACE

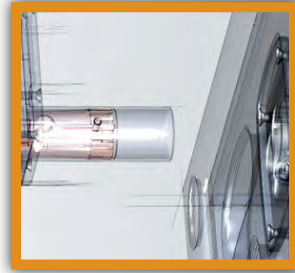


NEALE MACE

# The first scalable line array for all occasions

However large or small your audience and the venue, you can put together a system suitable for every situation using just the six components of the HK Audio Elements system. Here are just a few examples of systems you can build using the six components of Elements.

Thanks to **E-Connect**, HK's novel integrated signal routing, even the largest Elements setup is performance-ready in just a few minutes with a minimum of cabling. Due to each component's extremely compact and rugged design, transportation is no longer a hassle.



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 Distributed by CMI Music & Audio. For more info visit: [www.cmi.com.au](http://www.cmi.com.au)

## Band Four

- 8 x E435
- 2 x EA600
- 4 x E110
- 4 x E110A
- 2 x EF45

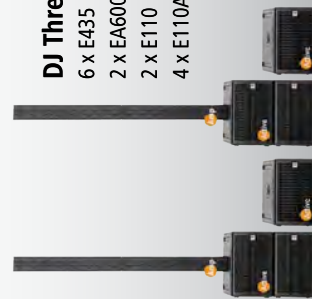


3,600w RMS



## DJ Three

- 6 x E435
- 2 x EA600
- 2 x E110
- 4 x E110A

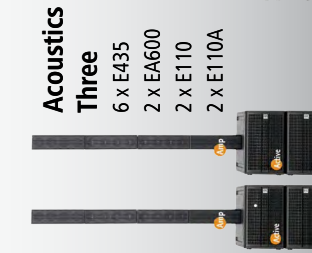


2,700w RMS



## Acoustics Three

- 6 x E435
- 2 x EA600
- 2 x E110
- 2 x E110A



2,100w RMS



## Voice Two

- 2 x E435
- 1 x EA600
- 1 x EP1
- 1 x EF45



300w RMS



# WHAT IS MISSING? NO FOH TOWER!

## TOURING PRODUCTION

E.I. are kind of the kings of the B stage – they do a lot of festivals – 5 stages at Soundwave in Sydney last year. Plus they supply complete production for a lot of overseas touring acts doing smaller venues, like Rick Astley late in 2012.

“We have kept out of the top end of touring”, says Neale, indicating his inventory is skewed towards the B stages and venues under 8,000 people. “If it doesn’t fit in our 45’ pan, then we don’t do it”.

The mainstay of audio at E.I. is Martin Audio and funny enough Martin Professional is the lighting instrument of choice.

“We started with Martin Wavefront, and now we can do five systems”, Neale says.

There are 32 W8LC line array elements, with 32 subs. Right now they are trialling the Martin MLA compact, a self powered system with extraordinary beam control.



“We have to buy lights and we have to buy sound”, says Neale. In the lighting dept are 160 movers: among them Clay Paky Sharpys, Martin Mac 700’s, Mac 250 Entours, TW1’s, Mac 301’s and 101’s. Control includes Grand MA 2 lite, Road Hog Full Boa, Pearl Expert and Hog 1k and 500. Bryce Mace, son of Neale and Caroline, is the mainstay of lighting with Christian Yanni also working in lighting. Bryce is LD for John Butler and operator for many gigs that E.I. do.

Phil Kesby overees the audio side in one of the two warehouses. They have a Cobra system, along with all the Martin, plus EV wedges. In control land, they boat nine digital consoles: 2 Avid Profiles, 2 Yamaha PM5D, 2 Yamaha M7CL, One AVID SC 48, a small Yamaha LS 9 and a Soundcraft Si compact. At the time of printing they had 2 new Yamaha CL5 consoles. They used the iPad remote to mix Sydney Swings (above) - allowing extra seating area to sell.

Conventional desks includes Heritage 1000, Allen and Heath ML4000, and Midas Verona and Sienna.

LEFT - BRYCE MACE  
BELOW - CHRISTIAN YANNI





# LONGEVITY

According to Neale and Caroline, asked separately, business has never been difficult, and business is a reflection of how you work. Neale has a high metabolism and can be found surfing most mornings at 6.30am at nearby Terrigal beach.

Caroline has a natural gut instinct for what they do, and can navigate the shoals of money to the point where they have no bad debts. “No promoter ripoffs”, we ask? “Never”, she says.

They get paid, and they pay. Distributors everywhere beat a path to their door, most are welcomed. Tony Russo from TAG has been a long term supplier of Martin Audio, and most recently has loaned them a complete Martin MLA Compact system for appraisal.

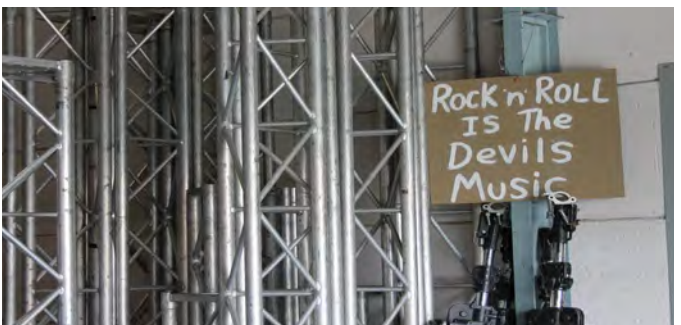
Caroline mentioned that equipment prices have been in the spotlight, so to speak, in recent years with some noise being made about buying offshore rather than through an Australian distributor.

“We’ve looked at prices, but there’s something to be said for loyalty. For example, years ago I had a problem and I rang Emmanuel (Ziino, boss at Show Technology), I said ‘I’ve got a problem with 8 moving lights’ and they stopped everything and fixed them in 2 hours. That’s what I’m paying extra for.”

She noted that local distribution could carry a premium of as much as 20% over what you may pay offshore, but once GST, duty and freight came into the equation, the 20% extra was fair.

After coffee our time is up, since Neale has to drive to Albury to resume some dates with English 80’s pop singer Rick Astley. Neale is on front of house, and really enjoying it.

**- Julius Grafton**



# 10 GREAT PRANKS!

(The ones you'll NEVER get away with!)

You know the story – show setup and rehearsal is SO BORING. After you've got cozy, rope lights rigged, ornaments and icons in place, Persian rug and fav chair just so, what now?

**CX** strongly encourage you not to enact any of the following mayhem on your beloved cohort of show business professionals. They will probably run you down and beat you up. As well they should.

But if you are looking for a career change, and a bit of excitement, let's go inside.....

The 10 great pranks you'll never pull:

- 1. Sound FX down random FOH line from monitors**  
Julius has done this, while bored senseless as monitor guy (on a Julius owned touring production, so no risk of getting fired!) The FOH dude was a dope, with stacks of his own effects, and he fiddled all the time. Julius used a nice little Sony Walkman, with a nice cassette of sound effects, and sent various inane noises down channels that were not in use, and should have been muted. Like stray Brass or Acoustic guitar special channels. Hilarious!
- 2. Random re-patch during show/changeover**  
Not terribly clever, but guaranteed to bend the mind of the FOH guy!
- 3. Mute alternate processor outputs from song to song**  
As above, very hard to discern WHAT is going wrong from

Pranks. This screen becomes....



FOH, but losing high frequency here and there, and a sub coming and going, these focus the mind of the FOH person.

- 4. 110v par cans off 240v dimmers**  
This one is really dumb, since the dimmers that let you switch down voltage can get switched back up again. Not by you!
- 5. Pitch shift lead vocal channel down an octave or several in their monitors.** Especially easy on a Yamaha M7CL, and done regularly at one church we know!
- 6. Pay attractive girl to give band a note saying "there's a taxi outside waiting for you".** Have her approach the stage just as a song ends, and preferably across an empty dance floor, for effect. The leader will (always) look happy to see what should be a song request, but what is actually a slap down. Hilarious!
- 7. Setup the drumkit left handed.** This one requires a lot of work, for obvious aggravation. Probably better done as you leave. For good.
- 8. Hang the backdrop inverted – and do it electronically if it's a projection.** Always fun to see the confusement!
- 9. Play Nailbomb as BGM before a jazz gig.** OK, play anything inappropriate as background music, to really get the audience in the mood. Andre Rieu, at a metal festival anyone?
- 10. We saved the best for last!** You know that serious RF tech? Who doesn't share stuff and always gives you the eye or the finger? When he is outside having his 33rd cigarette, sneak to his computer monitor and wire on your special 2-way VGA switcher! Run the secret line back to your little laptop, and just when he is DEEPLY intent on looking for a strange frequency, mid rehearsal, switch his screen view to HACKERS! Watch him fall over!!!

Every RF operators nightmare!





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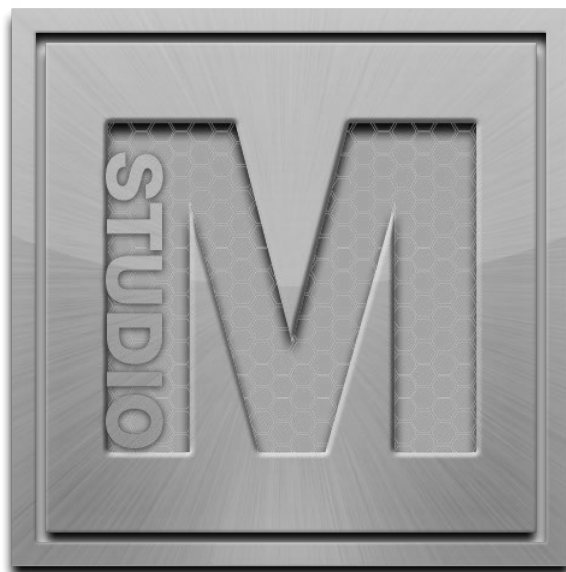
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**BUNDLE WITH V276 ON MAC  
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# WHAT-IF?

## What If I need to choose a chain hoist control system Part IV?

BY ANDREW MATHIESON

In the last article, we made the brave statement that we would attempt to de-mystify some of the jargon surrounding compliance to various safety standards – just what is the difference between a Category 3 circuit, an inverter claiming Performance Level d or a control system with a Safety Integrity Level 3? (to throw a few jargon-bites up into the air).

So where do these terms (Cat, PL and SIL) come from?

**Safety Category** (CatB, Cat1, Cat2, Cat3, Cat4) is a term used by European Standard EN954-1 and Australian Standard AS4024.1501.

EN954-1 is now obsolete in Europe, as of 31st December 2011, and AS4024.1501 is in the process of review and will also be made obsolete shortly.

**Performance Level** (PLA, PLB, PLC, PLD, PLE) is a term used by the International Standard ISO13849-1 and will most likely be adopted in Australia in the latest revision of AS4024 (Safety of Machinery).

**Safety Integrity Level** (SIL1, SIL2, SIL3) is a term used by the European Standard EN62061 and its Australian equivalent AS62061. This standard is a specific sub-set of EN61508/AS61508.

All of these standards define the design, testing and validation of the Safety Related Parts of Control Systems.

If the machine is inherently safe, then there would be no requirement for Safety Related Control Systems – you'd just tell the machine to move and stop and, being inherently safe, it would do exactly as it were told, with no risk of "unforeseen" behaviour.

To achieve the outcome of a machine/installation that is as safe as reasonably possible, there are 4 steps:

- Perform a Risk Assessment
- Define the measures required to reduce the risks
- Risk reduction through control measures
- Implementation of control measures

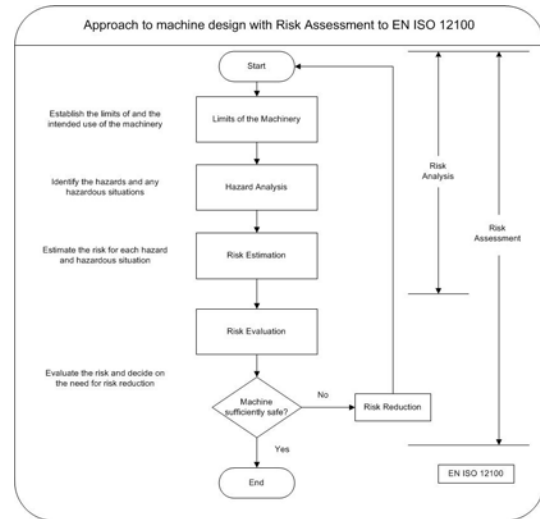
### Risk Assessment

The machine must be designed from a Risk Assessment – there are many ways to go about this and for the purposes of this article, we'll look at how this is done using European Standard EN ISO 12100.

Firstly there is a Risk Analysis, which establishes the limits of the machinery, identifies the hazards and hazardous situations associated and then estimates the risk for each hazard and hazardous situation.

Secondly there is a Risk Evaluation, where the individual hazards are evaluated quantitatively and a decision made on the need for further risk reduction.

These 2 sections together form the Risk Assessment, and the result of this will be a decision as to whether or not the machine is inherently safe, or whether further risk reduction measures are required to make it so.

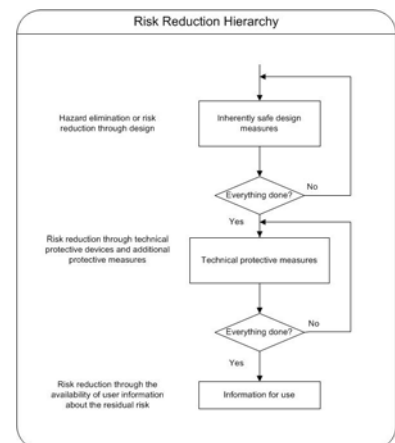


### Define Risk Reduction Measures

The objective is to reduce risk as much as possible. The process is iterative and it may be necessary to repeat the process several times in order to sufficiently reduce the risk.

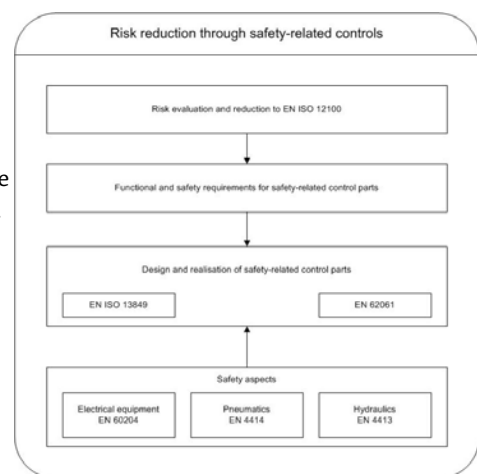
The hazard analysis and risk reduction process requires hazards to be eliminated or reduced through a hierarchy of measures:

- Hazard elimination or risk reduction through design
- Risk reduction through technical protective measures and additional protective measures
- Risk reduction through the availability of user information about the residual risk



### Risk reduction through control measures

If the conclusion of the first 2 steps is that safety-related control parts are to be used to implement a protective measure, then the design of these control parts becomes an integral part of the overall design procedure for the machine. The safety-related control system provides the safety function(s) with a SIL (Safety Integrity Level to EN62061) or a PL (Performance Level to ISO 13849-1) that achieves the necessary risk reduction.

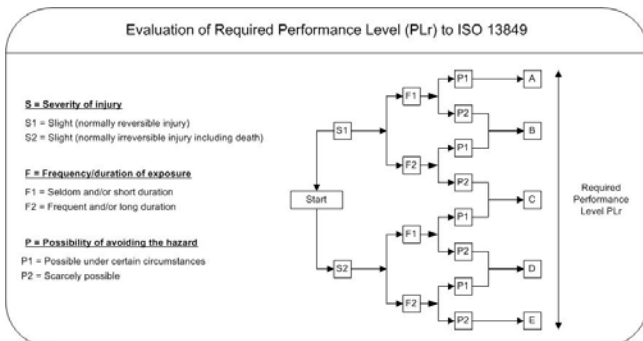


**Implementation of control measures**

This is where we get to see those SIL and PL terms actually used in the design of a machine control system. The 2 standards EN 62061 (SIL) and EN ISO 13849 (PL) now both require you to evaluate the risk that the particular safety-related control measure is reducing and this is where we get the SIL2, SIL3, PLE etc. For ISO 13849, there is a matrix for “Determination of the required Performance Level (PLr) For EN 62061 there is a SIL evaluation tool. Both use the same basic concepts, but enumerate and evaluate them slightly differently. For those of you familiar with writing a JSA (Job Safety Analysis) or with the use of the Safety Category tables in EN954-1, then the matrix in ISO13849 will look familiar – in fact, the PLr calculation is exactly the same as the Safety Category calculation, with Cat B equal to PLA etc. Both standards require you to consider and to estimate (evaluate) these four factors:

- The likely severity of injury resulting from exposure to the hazard
- The frequency and duration of exposure to the hazard
- The probability of the hazard
- The likelihood of avoiding the hazard

The result of this evaluation is a level of compliance required for the safety-related control parts in order for an acceptable level of risk reduction to be achieved, or, in English, the result of this evaluation will tell you what level of safety compliance is required from the control system in order for the machine to be safe.



Risk estimation and definition of the required Safety Integrity Level (SIL) to EN62061										
Consequences and severity	S	Frequency and duration	F	Probability of hazardous event	P	Avoidance	A	Class = S + F + P + A		
Death, losing an eye or arm	4	<=1/hour to <=1/day	5	Very High	5	Impossible	5	SIL2	SIL2	SIL3
Permanent, losing fingers	3	>1/day to <=1/week	4	High	4	Possible	3	OM	SIL1	SIL2
Reversible, medical attention	2	1/week to <=1/year	3	Likely	3	Likely	1		OM	SIL1
Reversible, first aid	1	<=1/year	2	Unlikely	2				OM	SIL1
				Negligible	1					

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.

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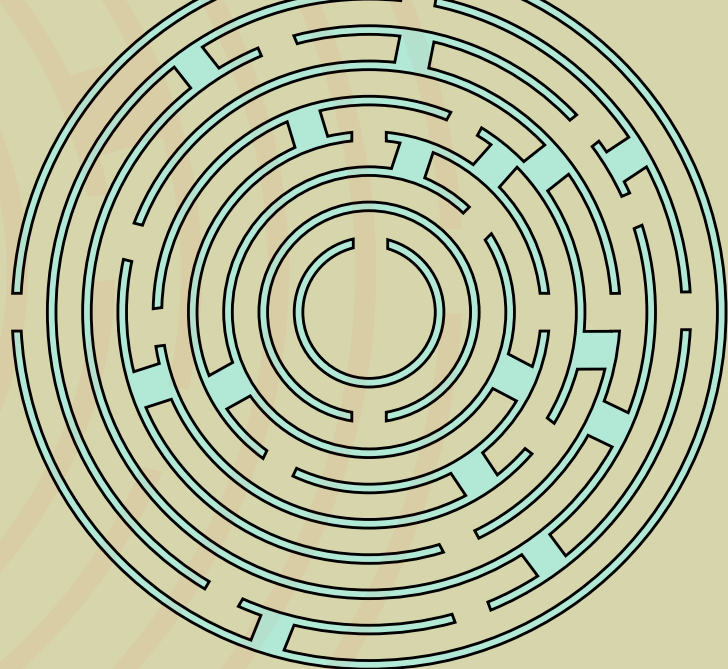
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# INSTALL ADVISOR

## TV STUDIOS

BY JIMMY DEN-ODEN



### LED LIGHTING IN TV

Lighting for TV is a skill that occupies that hazy ground somewhere between science and art. Both tungsten and discharge fixtures have traditionally been used in the past, along with dimmable fluorescent units with special colour corrected tubes. Now LED is a viable option not only for effect lighting, but also to light sets and people. A couple of important factors need to be considered when selecting instruments for TV lighting. The first of these is colour temperature.

Not all white light is created equal. Different light sources generate white light at different colour temperatures, and this is measured in degrees Kelvin. The lower the colour temperature, the more orange / red it is and the lower its value in degrees K. Low colour temperature light sources appear “warmer” than higher ones, which tend to look more blue. Tungsten fixtures generate white light at around 2800 – 3000K, while discharge lamps run much higher – around 5600-6000K. Think of a discharge spot used on a stage lit with tungsten – it looks blue. Just to further complicate matters, when you dim tungsten lamps the colour temperature decreases.

As humans our eyes see these differences, but our brains tend to disregard them unless the difference is obvious. Cameras are less forgiving. It’s possible to tell cameras “what colour temperature is white” (a process called white balancing), but unlike our brains they can only deal with a single colour temperature at once. Thus having consistent colour temperature across your studio lighting rig is very important.

LED fixtures are very good in this regard as they can provide extremely consistent output across a different range of intensities. Many fixtures use multi-colour chips which allow a range of colour temperatures to be produced, and thus match existing lighting conditions. LEDs are dimmed using pulse width modulation – basically the module is turned on and off very fast – the more time it is on the brighter the output. LED fixtures with low refresh rates exhibit flicker, which can be seen on camera. Whilst most fixtures are now “flicker free”, the better quality units will provide smooth dimming down to lower intensities, as well as better colour rendition.

It’s not just colour temperature where LED fixtures win out, they’re more efficient than conventional tungsten sources so more of the energy that goes in is converted to visible light. The majority of heat that is produced is removed via heatsink on the back of the chip block rather than dispersed in the beam. Commonly LED fixtures use cooling fans, but they’re usually fairly quiet and many have “studio mode” which reduces the fixture output to prevent cooling fans running above a certain noise level. Better yet, reduction in room heat allows smaller, quieter air-con plants to be used yielding further savings.

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**CX Suggests:**

**Martin MAC Aura –**

Designed for TV the MAC Aura can simultaneously produce a beam in one colour and a “halo” effect on the lens in a different colour. A range of pre-programmed effects make it a good choice for quick, easy camera eye candy effects.



MARTIN MAC AURA

**KEEPING YOUR COOL – THERMAL MANAGEMENT**

TV studios generally need to be fairly quiet places. Obviously when you’re shooting a rock band video clip, noise floor is less of a problem. For those shooting “talking head” type content (news, panel shows, webcasts), it’s more relevant. Air-conditioning can impact the noise floor of a room, but planning a ventilation system is about more than just noise control.

Two elements in TV production need to be kept cool – the equipment and the people operating it. In medium to large size studios, they’ll often be kept in separate rooms for both thermal and acoustic isolation. Properly air-conditioning a TV studio is a pre-requisite to it being useable. Without the right cooling you’ll have your on-camera talent beading up with sweat in no time – not a good look if you want repeat business.

Air-conditioning a TV studio properly is not a cheap proposition. Not only do you need to account for cooling the maximum number of people, but also counteracting heat from lighting equipment. Even LED fixtures generate heat, and while high ceilings are great to accommodate lighting grids, more space means more air to cool. In order to minimize fan noise acoustically treated ducts must be used to trap fan and air flow noise. The correct type of diffuser must be used where ducting enters the room to ensure proper distribution of cool air. All these factors place a load on the cooling system.

TV studios commonly require far more investment (both time and financial) in air-conditioning than most people realize. Designing the system such that air flow will reach all areas and fresh air in the room is replenished at a sufficient rate requires some serious engineering skills. The best start is to call someone who has them. If you can find a provider who has demonstrated experience ventilating and cooling broadcast environments this is a great start, since they’ll be familiar with many of the associated concerns.

Cooling equipment is another matter entirely. When electronic devices are in operation they generate heat. Most rack mount equipment has one or more internal cooling fan(s). Some gear vents front to rear, some side to side, and other devices rely on convection cooling to dissipate heat into the surrounding air. This only works if the surrounding air is cooler than the device. Anyone who’s ever run a sealed amp rack for any duration will know how quickly equipment can heat up.

In reality, the chance of a piece of broadcast gear failing while it’s on are lower than that of it failing to start up again after losing power. Typically equipment is switched on when it’s commissioned, and it stays on until such time as it loses power. Because the gear is constantly running, it’s always hot. This heat eventually causes the electrolytic starter capacitors in power supplies to perish. A device can often run okay under these conditions, but it won’t start up again if it loses power. While we can’t prevent this inevitability, we can take measures to delay it and prolong the life of the

**PRG TruColor HS –**

This fixture uses blue LEDs to activate a phosphor coated substrate. The light output is massive, and extremely flat since the source itself is a flat panel. Changing colour temperature is as simple as sliding in a different substrate panel.



PRG TRUCOLOR HS

**The SK025 SoftKey from Videssence** is a ceiling mounted LED designed for office video conferencing applications, available in 3200 and 5600K colour temperatures. Detailed data cutsheets on the videssence website allow users to select the appropriate beam accessories for their room.



SK025 T-Bar

**ETC Desire D40 Lustr+** uses the x7 colour mixing system to provide a wide array of colours and tints. Units can be cascaded in standalone mode and changes on one fixture propagated to others, making for quick setups in mobile applications. Beam angle is adjustable with optional lenses between 25 and 75 degrees.



ETC DESIRE D40

equipment by keeping it cool. 18 degrees Celcius is good, 16 is probably better.

There are two ways in which equipment in machine rooms can be kept cool – either sealing the room and cooling the whole space, or sealing the racks and forcing air through them. Cooling the racks is a great option since it puts cold air where it's needed most. The theory sounds simple - force cold air in at the base of the rack, and suck the exhaust out the top. Reality is more complicated since it requires the racks to sit on an elevated floor, and depending on the gear loaded into each rack the airflow needs to be balanced between multiple racks. Filtering the air properly is another important consideration; otherwise the equipment fans will clog up very fast indeed.

Redundancy is worth thinking about for critical applications. I've seen a control room where the air-con was shut down on a warm day – it took about half an hour for heavy condensation to appear on all the gear, and presumably, inside. In a studio you can always turn off the lights and kick everyone out to stop it getting hotter. In a machine room you'd be far more wary about powering down. Make sure your air-con is up to the task.

### CX Suggests :

**A good engineer!** For a better understanding of why, read this excellent article on the Broadcast Engineering website: <http://broadcastengineering.com/infrastructure/tv-production-spaces-ventilation-systems>

**Altronics H5185 3RU rack panel will house 3x 120mm cooling fans (which they also sell). Blanking panels are available for applications where fewer than 3 fans are used. The H5185 combined with fans provides a cost effective way to circulate air through sealed rack enclosures.**

For some excellent tips on thermal management inside rack cabinets check out this paper by Bob Schluter, Chief Engineer & CEO of Middle Atlantic. It provides explanations about various passive and active cooling methods, proper equipment & vent panel placement, and analysis of what happens if the fans fail! [www.middleatlantic.com/pdf/ThermalManagement.pdf](http://www.middleatlantic.com/pdf/ThermalManagement.pdf)

ALTRONICS  
H5185  
FAN PANEL



### WHERE'S MY CAMERA OP?

Not every multi-camera application requires every camera to have an operator. Think about the last time you watched the news – the same shot is often used. Not only does this give the content a consistent look and feel, but it allows cameras normally operated by hand to be automated. Robotic camera systems work kind of like automated lighting fixtures, the obvious difference being that they capture light rather than project it. Pan, tilt, zoom and focus can all be controlled remotely and “presets” incorporating these parameters can be generated, and subsequently recalled.

Robotic camera systems could be broadly split into two categories – self contained robotic camera, and remote heads for pedestals or tripods onto which standard cameras may be mounted. Remote head systems can be flipped into manual mode and operated by hand, while self contained units generally require a control unit to do anything. Remote height drives are also available.



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Control units vary from system to system, but most will be capable of driving several robotic cameras from a single panel. Pan and tilt is handled with a joystick, with additional controls for zoom and focus. Camera imaging functions where applicable are still managed within a CCU as with an operated camera. Shots for each camera can be recorded on the controller and recalled by a “shot-box”, or even the vision mixer where the systems are integrated. Where formerly proprietary cabling was required to interface the controller to the robotics, many manufacturers are now turning to Cat5 and Ethernet based control platforms – this makes systems cheaper and easier to install and service.

Robotic cameras may not be the right answer for “on the fly” type shows, where no script exists and as such it’s not possible to anticipate what shots will be required. In situations however where the show is running to a known script or format, robotics are a great way to save on operators while ensuring consistency of presentation.

### CX Suggests :

**At the upper end of the scale, the Vinten Radamec Fusion FH-100 Remote/Manual Pan and Tilt head** supports camera and lens configurations weighing up to 55kg, and can be operated manually or via the Radamec Control System.



VINTEN  
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### The Sony BRC-H900 PTZ camera

is compact and lightweight, yet provides broadcast grade HD pictures with remote control via the VISCA protocol. With a variety of mounting and output options and a 1/2” 3CMOS image sensor, it’s ideal for outside broadcast work.



SONY BRC-H900

### CAN YOU HEAR ME?

Perhaps one of the most critical facilities in TV production is a solid communications system. Unlike theatre where communications are traditionally based on party-line systems, TV facilities will generally require a matrix based solution to enable point to point communications. This is fundamentally due to the nature of communication within TV production – there’s an awful lot going on all at once. Not every person needs or wants to hear what every other person needs to say – an Audio Assistant for instance is unlikely to need to hear instructions from the Lighting Director.

Matrix systems work via a central routing system – the matrix. User panels are wired to ports on the matrix in a star configuration – every panel with its own port. Modern matrix systems have advanced signal routing capability and usually require a computer to program / configure. Ports are named according to the operator for whom they have been programmed, eg: Director, DA, Producer, Camera, Lighting and so on. Each panel can be programmed to listen and/or talk to various other ports or groups. Which port the panel is plugged into defines its programming.

Devices other than panels can be connected to most matrix frames - belt packs and wireless communications interfaces are usually supported either by 2 wire or 4 wire interfaces. Some frames support contact closures or other methods by which RF transmission can be triggered remotely from panels for half-duplex operation (transmit and receive on same channel). Full duplex systems transmit constantly to portables on one channel and receive inbound transmissions on another, making them suited to applications where users need to hear program audio.

Another element to a broadcast comms system is interrupted foldback, or IFB. Earpieces are commonly worn by on-screen talent, and normally these will carry a mix-minus. This is a post-fade mix of the program minus their own voice, and allows them to interact with other talent even if they are not in the same place. A sideline interview position at a sports match would be a good example of this. Commentators use special panels which allow them to “sneaky talk” – their microphone is muted to the program feed and instead routed to the directors panel. In both commentary and IFB applications, the director can key on to the talent to speak with them directly. This action is usually accompanied by a ducking of the talent’s program feed. All such functions are handled by the comms matrix, except the mix minus feeds which are generated within the audio console then fed into matrix ports.

Perhaps the most important factor when choosing a system is ensuring it has adequate headroom and routing capability to cater for expansion and interconnection with other systems. Users often require more ports than initially anticipated. A great system is no good with bad programming, so choose your comms technician carefully!

**CX Suggests:**

**The HelixNet system from ClearCom** allows up to 20 beltpacks to be driven from one base station. Four party-line channels are shared across the system, and because it's digital the audio quality is great.



CLEARCOM HELIXNET BELT PACK



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## Big Picture Focus

BY ANDY STEWART

**Whether it takes an hour or a week, there eventually comes a time when a mix seems 'finished'.**

**All your effects are working well, the panning balance is locked in and sounding imaginative, and all the compression settings and EQs have been honed to everyone's satisfaction.**

**We're done... aren't we?**

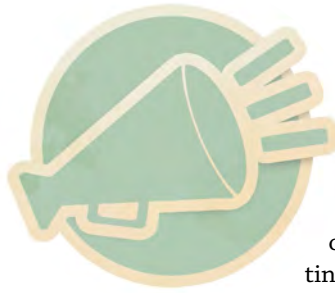
**Well no, not always.**

Mixing audio is one of those art forms where the workload and focus tend to progress from coarse to fine as the sound evolves. Typically you start out working on big picture stuff and end with discussions about the pros and cons of adding 0.3dB of 10kHz to the vocal... that sort of thing. Nothing wrong with that.

It's like building a house. You don't work on the trims and paintwork first and then afterwards contemplate the foundations... there's a natural order to the process that most of us inevitably follow.

### THE BIG PICTURE

But a curious thing can happen to your mix as you wile away the hours in front of plug-ins and outboard gear, and your focus leans more towards fine detail than big picture. Things



can get boring, static, and sometimes even unbalanced... and that's not good.

Like a bull-ant at a picnic, this nasty little problem can sneak up on you while your back is turned. As you become pre-occupied with details about compression settings and micro adjustments to EQ, a mix can sometimes lose its immediacy, focus and dynamic.

Complex and detailed songs that earlier seemed full of great melodies, backing vocals and intricate arrangements can suddenly sound flat and uninteresting.

How has this happened? Two hours ago things were sounding great and since then you've only made fine adjustments!

Ironically, it's you who's caused the problem... by being too good at making things fit just so, at fine-tuning things so that everything gels nicely together. That 'glue' you've so deftly applied has brought you unstuck.

### FAMILIARITY BREEDS CONTEMPT

Unfortunately, your intimate knowledge of the various mix components of a song can sometimes warp your perception of where they reside in the soundscape. For instance, that cool keyboard sound you recently added that, to your ear, seems modest in level can be all but inaudible to a punter, and worse still, have the detrimental effect of simultaneously clouding their perception of something else. Now there are two sounds in the mix that a punter can't hear!

While all those subtle tweaks and layered effects are sounding great to your trained ear, they've inadvertently filled in the space that once framed the key ingredients with stark contrast, and good mixes need to maintain this contrast to hook the listener in. Making things sound too subtle and nicely blended can leave the average punter with nothing to latch onto, and they may lose interest. It's like sticking a whole host of fabulous fresh ingredients into a blender and flicking the switch. Before you know it - and despite how nice the produce was - you've got grey mush. No one wants that.

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But don't panic. All your hard work hasn't been for nothing. There's simply more to do...

## DYNAMIC MOVES

The key now is to step back (perhaps go and make a cup of tea or something), and return to the mix chair with one clear aim in mind: to find the key focal points of the mix and push them forward. Forget compression settings and predelay values for a moment and just ask yourself: 'what is the musical focus at this point in the song, and is it clear?'

If your mix was sounding great before, it's going to sound even better once you pull the whole thing into focus with automation moves.

## AUTOMATING LIMELIGHT

The key is to make sure you orchestrate the automation so that every time the song's musical focus shifts, there's a dynamic move to highlight it. Whether you're doing this manually via physical fader moves or drawing automation on a timeline, the key is to work through the song constantly asking yourself: 'what is the central ingredient right now and does it have enough impact?'

Sometimes the solution is as obvious as simply turning up the vocal, other times it's about a lost drum fill or cymbal hit that has suffered under too much compression. Pushing up the drumkit's first downbeat of the change from verse to chorus might be the solution. Or you may discover that the drums are better turned up a couple of dB for the whole chorus, rather than just the first beat.

Guitars can often have a tendency to drift into the background while your back is turned too. More than just about any other instrument, if they're too low in a mix, guitars can reduce mix clarity like nobody's business, washing away the focus while contributing very little. Often they need to come forward or be loosened up dynamically, especially if they're playing a lead break and/or replacing the vocal as the song's main focus. Riffs can get lost and vibrant performances turned to wallpaper if they're too low and/or compressed. This can be particularly problematic when there are several guitars in the mix. Together they can reduce one another to a bunch of inarticulate sounds, especially if the mix engineer isn't especially au fait with the nuances of the individual parts. Automation can, however, quickly pull a musician's hard work back into focus and provide detail and clarity where there was previously pea soup. Lift out the detail and restore some movement back into this picture.

## COMPRESSION VS DYNAMICS

Another big picture thought: be mindful of the fact that lots of instruments combined with lots of compression have a tendency to flatten a mix and undermine a song's focus and detail. Ironically, this combination also tends to make a song sound quieter overall, rather than louder. To compensate, mastering engineers will then compress things even more in an attempt to bring the song back up in level, and before you know it the song is sounding distorted and brutalised. Some of the loudest songs have the simplest arrangements.

## FOCUS THAT

So remember, once you think a mix is over the line, look carefully at the big picture and ask yourself this simple question: 'does the song have impact and do all the focal points and key ingredients punch, move and sparkle like they ought to?' You should be able to start the song anywhere along its timeline, and whether you start in the middle of a chorus or bridge or verse, the focus of that section should be immediately apparent to the average listener.

Now you're ready to print the mix and go for a drive in the car... you do have a good car stereo I hope?

Andy Stewart owns and operates The Mill in Victoria. He's seen many a song turned to pea soup and prefers his ingredients raw.

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## ELAN AUDIO RMU-01 AUDIO MONITOR AUDIO MONITORING AT ITS EASIEST

BY JIMMY DEN-ouden,  
TESTING DONE WITH ASSISTANCE FROM KEITH COOPER

**THE RMU-01 FROM ELAN IS A 2 RU DEVICE DESIGNED TO ALLOW REFERENCE MONITORING OF MULTIPLE SOURCES IN DIFFERENT FORMATS. THE FRONT PANEL HOSTS A PAIR OF SPEAKERS, DUAL 30 SEGMENT LED METER RAMPS, 12 INPUT SELECT KEYS AND A COUPLE OF MODE SELECT KEYS AND POTS. EACH INPUT KEY HAS A PAIR OF LED INDICATORS - OK AND FAIL.**

Inputs to the device are via three card slots on the back panel. Six stereo signals can be connected to each input card, as well as a fallback stereo analogue signal. Our test unit was supplied with one analogue card and one AES card, and we understand there's an SDI input card planned for the future. If you've done the math you've probably figured out there are 18 inputs but only 12 keys to choose them. Each input key can have a "shadow" input mapped, which is accessed by holding down the key for a couple of seconds. Pressing the DISPLAY key alternates between VU and PPM metering, with backlighting on the appropriate scale and an obvious change in meter ballistics.

Stereo analogue and AES outputs allow the unit to feed other devices with whatever input signal is selected. The RMU-01 also has an in-built 30W amplifier to drive external speakers if you choose to; otherwise the internal ones are pretty good. There's not a substantial amount of low end,

but for dialogue-based program they sound great. Top end is very clean and feels like it extends well beyond audible frequencies. Volume to the speakers can be adjusted, and the mode select button allows you to listen to Left, Right, Stereo, Mono, or Phase inverted signal. A warning shows on the display when Left & Right inputs are significantly out of phase with each other.

While pressing the input select button changes the source you hear and see metering on, you can also rotate the "status" encoder and then press it to see input status for other inputs. The device will display sample rate for AES signals, and the AES output can be set to 48 or 96kHz at 24-bit depth. Signal failure is shown in real time for the selected input, with other inputs scanned twice a second.

The input reference level for AES is -20dBfs, which shows 0 VU on the meters and +4dBu on the monitor output. The reference level can be adjusted in 1dB steps up or down by 10dB. Input peak detection happens at 0dBfs - or -9dB on the VU meter. We verified this with a variety of test tones generated at specific output levels, and connected the playback device into the RMU-01 via AES. The frequency pass-through specs from analogue input to monitor output are pretty full on - 11Hz - 57kHz at -1dB.

The RMU-01 can show the time on the display when a valid SMPTE time code source is connected to the input on the back. Signal fail detection can be customized by adjusting parameters for time and detect level. This is all done through a HyperTerminal session over USB, as is naming of the inputs. The USB driver installation and HyperTerminal connection did send us to the instruction book, but once armed with the relevant info it all happened painlessly enough.

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When inputs are named via the interface there is no check to ensure the text will fit on the display, but ELAN has at least had the decency to mention this in the manual. When you rename an input it doesn't take effect until you switch away then back to the input in question.

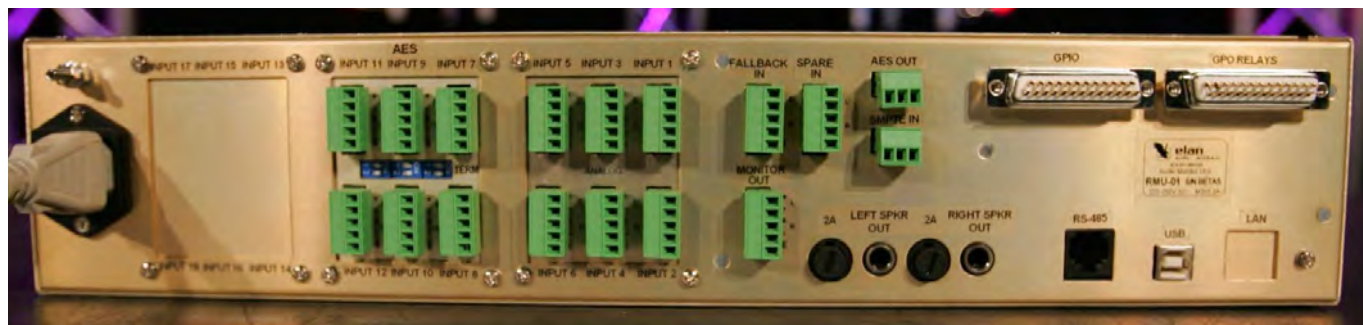
A pair of D25 connectors on the back panel allows GPI and GPO Relay triggers to be connected. These can be setup to switch inputs on the device, as well as close relays on failure of an input. The RMU-01 can also be setup to switch to different sources at specific SMPTE time code values. Our test unit didn't have a LAN port (the panel hole blanked over), but where this exists it will provide streaming of the selected source over Ethernet, as well as control and programming of the device.

As you could expect from an installation grade broadcast product, most connections are made via phoenix terminals.

Not only does this save much space, but also significant cost of connectors. Phoenix plugs were supplied for every terminal on our test unit, along with two solder type D25 plugs. AES inputs have loop through terminals and switchable terminators for each input (all on the card).

All told, the RMU-01 is a really nice solid device with many practical applications. It does exactly what it's supposed to with a minimum of fuss, and while I wouldn't mix a recording on the internal speakers I don't think that's the intended purpose. We were collectively blown away by the stellar build quality, so much so that I was very surprised to find out the pricing is about half what I expected to be. It would be very much at home in any broadcast control room, monitoring or master control facility – radio or television alike.

Volts	dBu	IEC I Nordic	IEC IIa BBC	IEC IIb	DIN	VU	EBU R68	SMPTE RP155
12.277 V	+24dBu							0
10.941 V	+23dBu							-1
9.752 V	+22dBu							-2
8.691 V	+21dBu							-3
7.746 V	+20dBu							-4
6.904 V	+19dBu						0	-5
6.153 V	+18dBu						-1	-6
5.484 V	+17dBu						-2	-7
4.887 V	+16dBu						-3	-8
4.356 V	+15dBu						-4	-9
3.882 V	+14dBu						-5	-10
3.460 V	+13dBu						-6	-11
3.084 V	+12dBu	+12	7	+12			-7	-12
2.748 V	+11dBu	+11		+11	+5		-8	-13
2.449 V	10dBu	+10		+10	+4		-9	-14
2.183 V	+9dBu	+9		+9	+3		-10	-15
1.946 V	+8dBu	+8	6	+8	+2		-11	-16
1.734 V	+7dBu	+7		+7	+1	+3	-12	-17
1.546 V	+6dBu	+6		+6	0	+2	-13	-18
1.377 V	+5dBu	+5		+5	-1	+1	-14	-19
1.228 V	+4dBu	+4	5	+4	-2	+0	-15	-20
1.094 V	+3dBu	+3		+3	-3	-1 +3	-16	-21
0.975 V	+2dBu	+2		+2	-4	-2 +2	-17	-22
0.869 V	+1dBu	+1		+1	-5	-3 +1 +3	-18	-23
0.775 V	0dBu	test	4	test	-6	-4 0 +2	-19	-24
0.690 V	-1dBu	-1		-1	-7	-5 -1 +1	-20	-25
0.615 V	-2dBu	-2		-2	-8	-6 -2 +0	-21	-26
0.548 V	-3dBu	-3		-3	-9	-7 -3 -1	-22	-27
0.489 V	-4dBu	-4	3	-4	-10	-8 -4 -2	-23	-28
0.436 V	-5dBu	-5		-5	-11	-9 -5 -3	-24	-29
0.388 V	-6dBu	-6		-6	-12	-10 -6 -4	-25	-30
0.346 V	-7dBu	-7		-7	-13	-11 -7 -5	-26	-31
0.308 V	-8dBu	-8	3	-8	-14	-12 -8 -6	-27	-32
0.275 V	-9dBu	-9		-9	-15	-13 -9 -7	-28	-33
0.245 V	-10dBu	-10		-10	-16	-14 -10 -8	-29	-34





BRAND: ELAN AUDIO  
 MODEL: RMU-01  
 PRO PRICE:  
 RMU-01 (FRAME ONLY) \$1980 INC GST.  
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 RMU-AES AESEBU INPUT CARD - \$495 INC GST  
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# Martin M2GO

Take your show on the road

BY JIMMY DEN-OUDEM



We had gathered in the CX lounge a few weeks back to discuss something or other, when the conversation turned to lighting console operating systems. In a short period of time we'd come up with at least 14 different operating systems. As a lighting person, knowing how each of these works is no small feat. As an audio person I reckon it's even more difficult. So it's nice when things make sense.

The M2GO from Martin makes a lot of sense. Its operating system is the same as the M1, and prior to this the Maxxyz. Consequently the software is mature and quite stable. Show files are interchangeable between M1, M2GO and M2PC. The M2PC model is similar to the M2GO, minus internal processing and a couple of DMX ports on the back (you use an external laptop or computer to run the M-PC software, and the M2PC provides control surface and DMX connectivity).

The idea of the M2GO is that the parts of the console you'd need to travel are basically self-contained. The processor uses an SSD for storage, so it will likely stand up to the rigors of travel better than a spinning disk based system. While you do need to plug in a screen to use the M2GO, basically any standard computer monitor will do the job. A touch screen is the preferred choice for most since it integrates visual and control elements. Any decent touch screen with a USB interface should be fine – we had a 22" ELO unit which worked fine. Both M2GO and M2PC ship with the

“airline lunch tray” plastic cover, which virtually makes them hand luggage when flying!

We live in the age of USB and M2GO is no exception to this. Plenty of ports allow for connection of external storage, keyboard, mouse and a range of fader wings. A Martin USB accessory allows the console to interface to SMPTE or lighting time code. 4096 channels of control are available, and on the M2GO 4 universes are instantly available on the back panel 5 pin XLRs. Dual gigabit Artnet / Maxnet connections complete the picture. There's a locking 4 pin XLR socket for power which is supplied by the included line-lump style power supply – so it won't accidentally disconnect. The M2GO can be switched into “surface only” mode to function as a USB fader wing for an M1.

So far as usability goes the M2GO feels really good. Trying to figure out some consoles causes my eyes to glaze over a bit – the M2GO was very easy to patch, select fixtures, generate lighting looks and record these as cues in lists. And that's without reading the manual. I took the console out to our January Lighting training course with only a vague memory of using an M1 some time back, and had no problems doing any of this (with an audience!).



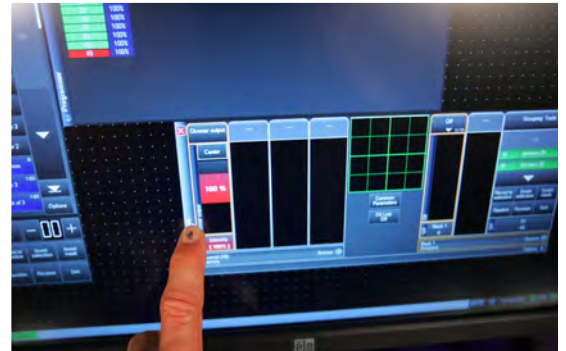
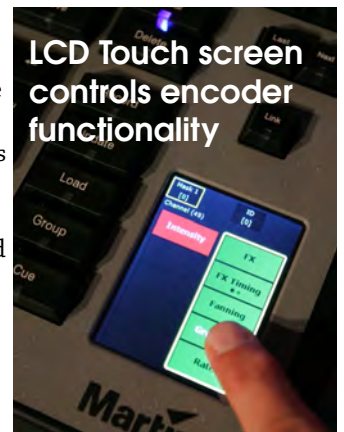
Packed and ready M2GO!

The buttons are mostly in the same locations as on the M1, so if you can use one of those you'll be fine. Some of the hardware buttons are replaced by a 3.5" LCD colour touch screen that lets you change functionality of the encoder wheels. The console supports up to 1000 cuelists on faders and another 1000 on playback buttons. It can also track an M1 in real-time to act as a small footprint backup for important shows.

Like the M1, the operating syntax feels a bit like a Hog 1k but generationally speaking the M2GO is much newer. This means it does far more, so occasionally it asks more questions of the operator during processes like recording cues. More universes, in-built fixture editor, industry current fixture library and user definable hot-keys make it very flexible. I really like that various screen elements can be re-sized and arranged on the fly.

Pricing on both M2GO and M2PC consoles is very

attractive. Ten years ago a console with this kind of functionality was unthinkable for \$20K, much less half that figure. The user interface feels very much like it's developed in an evolutionary manner rather than revolutionary, and this makes it extremely use-able. It has all the power and practicality of the M1, with added portability and a lower price tag to boot.



BRAND: MARTIN  
 MODEL: M2GO AND M2PC  
 RRP: M2GO - \$10990 INC GST. M2PC - \$6990  
 INC GST. ADD ABOUT \$1300 FOR A SUITABLE  
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 PRODUCT INFO: WWW.MARTIN.COM  
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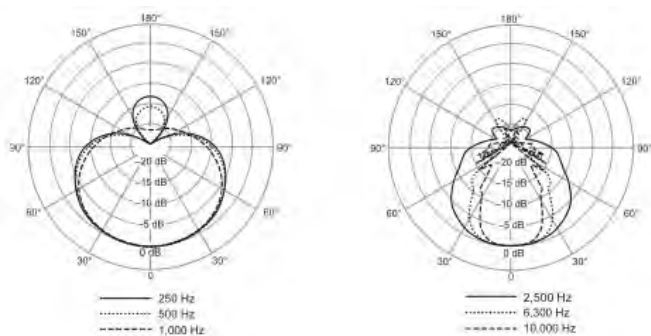
# SHURE VP89 SHOTGUN MICROPHONES



BY JIMMY DEN-ouden

**When the VP89 was announced I was pretty curious to see how good it was. I got hold of a pair of VP89L mics and over a month took them to a bunch of gigs to evaluate in real life conditions. I record live bands on real stages, and the big challenges I've encountered with crowd mics are those of pattern control and SPL handling.**

The VP89 is a modular shotgun microphone with three capsule variations available (Short, Mid, Long). The longer the barrel, the tighter the pickup pattern will be. 30 degrees for the L model, through to 70 degrees for the S model. Pattern control is important to me since I want to capture the sound of the audience without spill off stage or the PA. The VP89L was very good at picking up the sounds of enthusiastic audiences at distance without a whole bunch of the house mix off the PA. Looking at the polar plot shown here you can see very little lobing behind the mic once you hit 500Hz and up. This is consistent with my observations. You could use an S model and an L model right next to each other and (with slightly different aim on each) pickup two entirely different parts of the audience – I like that a lot. There's a 12dB per octave roll-off switch that filters out 200Hz down when engaged. When the switch is not engaged, there's still a roll-off from 100Hz. On a shotgun mic this makes sense, since less LF from the source will actually reach the mic.



I normally place ambient mics adjacent to or on top of the venue PA stack since it means less fiddling about with delays is required. With some mics this can lead to problems with capsules overloading and out distorting– even when installed on rubber shock mounts and the stated SPL handling capability was >140dB! I used the VP89L mics on shorty stands on top of a rather sizeable system on several occasions, and had no such problems. The maximum SPL rating of the capsule is load dependant, but at 1000R is stated at 128.5dB. Certainly enough for me.

My test mics shipped in a solid hard tube style case with a velcro fastener securing the end cap, and wind socks which I left on in case of wayward beer or other drinks flying through the air. The socks seem to roll the top end off a bit, but not in a bothersome way. I had crowd noise and it sounded great.



I borrowed a little from Art vs. Science for the title to this review, but reality is that's just how the VP89L worked for me. Point the mic at the thing you want to hear, and that's exactly what you get. They're not cheap, but nor are any of the comparable alternatives.



BRAND: SHURE  
MODEL: VP89  
SSP: VP89S - \$959.  
VP89M - \$1229. VP89L - \$1369. ALL INC GST.  
PRODUCT INFO: [WWW.SHURE.COM](http://WWW.SHURE.COM)  
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# BOSE L1 MODEL IS PORTABLE LINE ARRAY

## STICKING TO THEIR GUNS

BY JIMMY DEN-ouden

*BOSE RELEASED THE L1 SYSTEM SOME YEARS BACK NOW AND WHILE THE ORIGINAL WAS PRETTY GOOD IT HAD SOME OBVIOUS PROBLEMS - THE MAIN ONE OF THESE BEING THE RIDICULOUSLY OVERSIZED BASE UPON WHICH THE SYSTEM STOOD. THE BASE HOUSED THE ELECTRONICS AND PROCESSING AS WELL AS THE MIXER, THOUGH FROM MEMORY THE MIXER WAS REMOVABLE.*

Time has marched on, and Bose has been hard at work coming up with a new take on the L1 – the Model 1S. Not only is the array different, so are the add-ons. Our system as tested included the L1 Model 1S portable line array, B2 bass module and T1 ToneMatch audio engine.

The kit arrived brand new in sealed cardboard boxes. Within the boxes all the items are then packed in soft slip-on cases. The B2 module has integrated handles, the L1 Model 1S splits into two parts and its case has handles, as does that of the base. The T1 has a slide-on hard cover and a soft case. Before you even plug the thing in it reeks of quality and attention to detail. Ever seen a Bose branded NL4 cable? I have now. Even the zippers on the case are embossed. There's no way Bose could be accused of cheating out on the accessories – it even smelled good.





***PACHED AND READY TO GO***

The architecture of the L1 system is such that the array sits on a base, which houses the system amplification for that and the bass module. The T1 unit connects to the base with an EtherCon cable, but you can also plug an analogue source directly into the system on a TRS jack. The B2 module connects into the base via the included NL4 cable. It seems a lot less proprietary than Bose gear of days gone by, which is probably a good thing. It demonstrates maturity. The L1 Model 1S is called a "portable line array", and to our thinking this is basically true. The "stick" breaks into two

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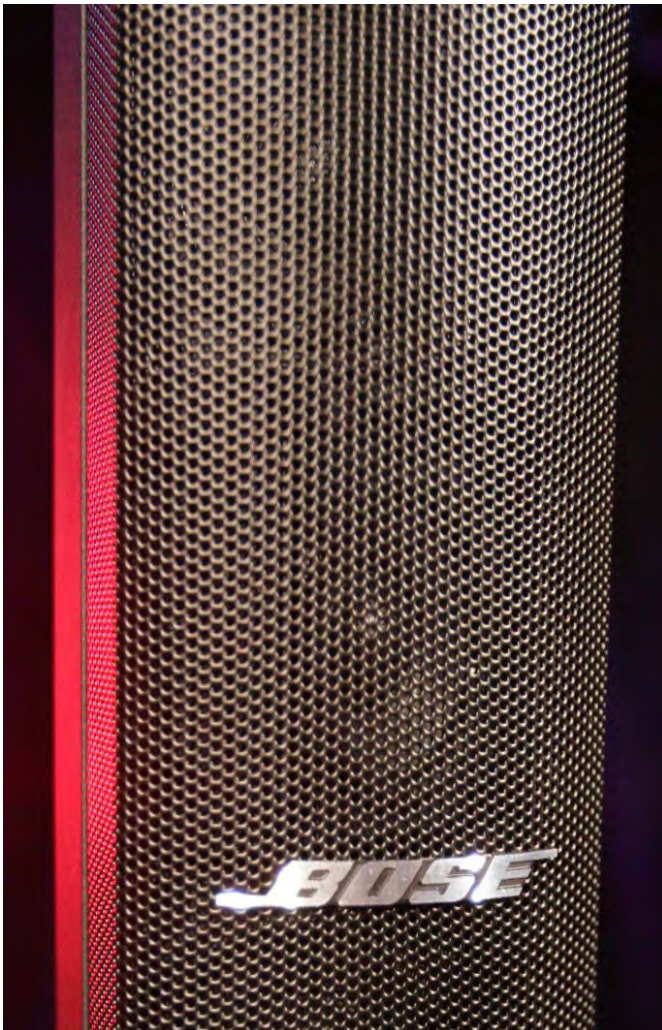


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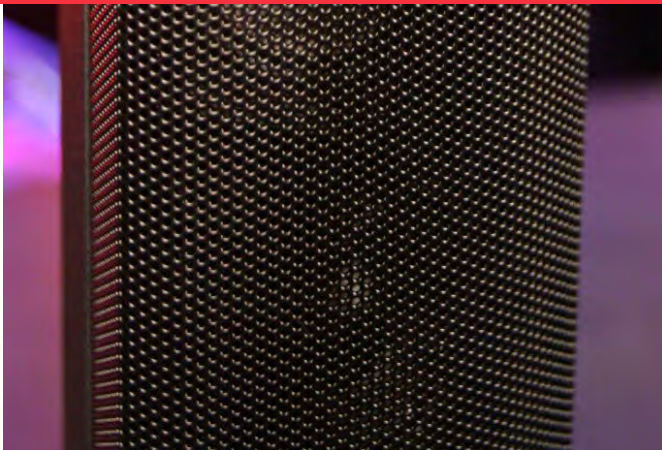
coverage is basically the height of the array – above and below this it rolls off noticeably. The height is such that when standing or seated in a chair on the same level as the system your head is in the right spot to hear it.

The B2 bass module is relatively lightweight and packs quite a punch for its size. It sits nicely between the fold-out legs of the L1 base and the whole thing looks very tidy indeed. I remember being at the Bose RoomMatch demo some time ago and being blown away not so much by the system as a whole but specifically the subs – they were awesome. Bose just seem to make good subs (anyone remember the Wave Cannon?) and the B2 is no exception.

The T1 ToneMatch unit is fundamentally a 5 input mixer – 3 individually controllable mic inputs and dual line inputs which appear as channel 4/5. They could have just called it a mixer but it would be hard to justify the \$799 pricetag. Plus it's a bit smarter than “just a mixer” – the whole thing is obviously loaded with DSP and includes a bunch of preset functions. Each channel has a trim pot (gain), a level control, an FX Mute button, CH EDIT button and MUTE key. There's a master level control and global phantom power button, plus a backlit LCD screen and big rotary encoder.

The rotary is used to choose which channel parameter you want to adjust, with modifications then made via three encoder/buttons beneath the screen. To each channel you can apply “zEQ” (3 band lo/mid/high fixed), single band parametric EQ, compressor/gate, mod (flange, chorus etc), delay (digital, analogue, tape), and reverb. Reverb selection is common to all channels, but you can adjust saturation and brightness individually. There's also a tuner function and aux feed level.

## ALTERNATING DRIVER CONFIGURATION



## POWER BASE PLUS SUB

parts, the upper of these containing the drivers and the lower being a spacer – albeit an elegant one. The driver configuration is not unexpected – 12 small drivers (the Bose site just calls them “small drivers” in an alternating left to right offset configuration. Horizontal coverage is specified as 180 degrees, and this seems to be a realistic claim. Vertical



## DIAL UP YOUR MIC

Probably the biggest point though is the ToneMatch setting – just tell the unit what’s plugged into each channel and it applies appropriate EQ curves to suit. I tried it with an SM58 and choosing the “Shure SM58” preset the difference between that and “flat” was obvious. Moreover, it was good. The internal effects all sound nice, though too heavy a hand with the compressors gets a bit obvious. Still, with so much internal processing there’s no need to bring external gear.

The really appealing thing about the system as a whole is that it’s fabulously simple to use. Bose market the kit as suiting solo musicians, bands and public speakers. Probably fair, though it’s not up to the Metallica spec. But it’s not trying to be – it’s built for small to mid-size venues. In these situations it will work well. The original theory of the L1 system was that each musician had their own system, and regulated their own level. The new version gives more scope for multiple people to share systems, and it seems to have bigger cajones than its predecessor.

I tried to poleaxe our test kit by turning it up as loud as I could – it didn’t fall to pieces, it just limited when it didn’t want to go any louder. Even under duress it still sounded

pretty good. The fact that all the amplification is internal and the system is entirely self-managed means reliability is likely to be high.

Overall I like this kit a lot for what it is. It would certainly yield better results than more complicated systems in unskilled hands. The L1 Model 1S kit isn’t going to suit every application, and while it will only serve a certain size of room it will do so very competently. It’s pretty well the perfect acoustic duo or trio PA, and its simple enough to use that no operator is required.



## TONE MATCH CONNECTIONS



BRAND: BOSE  
 MODEL: L1® MODEL 1S WITH B2 BASS AND TONEMATCH® AUDIO ENGINE  
 RRP: \$3600.00 FOR THE TURNKEY SYSTEM  
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# MACKIE DL-1608



## MIX IT UP BRO...

BY JIMMY DEN-ouden

**BEFORE I LAID HANDS ON THE DL-1608 I SAW THE YOUTUBE VIDEO ADVERT BY MACKIE. CONSIDERING IT LOOKS LIKE THE ADVERTISERS WERE TRIPPING SERIOUS BALLS WHEN THEY SCRIPTED AND SHOT IT, THE AD DOES A REMARKABLY GOOD JOB AT DEMONSTRATING HOW THE THING ACTUALLY WORKS. IT MAKES THE DL-1608 LOOK EASY AND FUN, AND THAT'S NOT SO VERY FAR FROM THE TRUTH.**

The DL-1608 is a 16 input console with 6 aux busses, stereo bus, reverb and delay sends plus a dedicated iPad input channel. This is quite useful, since you need an iPad to use the console.

I think this thing is targeted at smaller shows with some FOH, a few monitor sends, and a couple of effects – it seems about the right size to do this.

The inputs are Mackie Onyx pre-amps, the first 12 being XLR only and the remaining four on combo XLR/ jacks connectors. Stereo output is via XLR, auxiliaries are on TRS jacks, and there's an RJ45 network port. The power supply is external and has a screw-in DC connector – a little untidy

but at least it locks in place.

16 gain pots and a headphone level control are the only analogue knobs on the device. The back panel has a switch for power, and another for global phantom power. Everything else runs off the Mackie Master Fader iPad app. The iPad slides into the front of the mixer and when you launch or switch to the app, it takes a moment to synchronize with the console. This happens very quickly – maybe a second or so. The metering and controls all work in very real-time and respond nicely.

The iPad interface has been well thought out in many respects. It's very visual to operate and we didn't need to read the instruction book to get the unit to pass audio. Playing



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International Standard BS EN 13200-3:2005 (Spectator Facilities) Annex A  
WA Health Directorate 2004 (Guidelines for concerts, events and organised gatherings)  
Crowd Control At Venues And Events, A practical Occupational Health and Safety Guide, WorkSafe (Vic) September 2006  
Australian standard AS/NZS 1170 parts 0,1 and 2:2002 (AKA loading codes)  
Australian standard AS/NZ 1664: 1: 1997 (Aluminium structures)  
Australian Standard AS 4687-2007 (temporary fencing and hoardings)  
MCK Metals Pacific. Strength and resistance load testing, November 2006  
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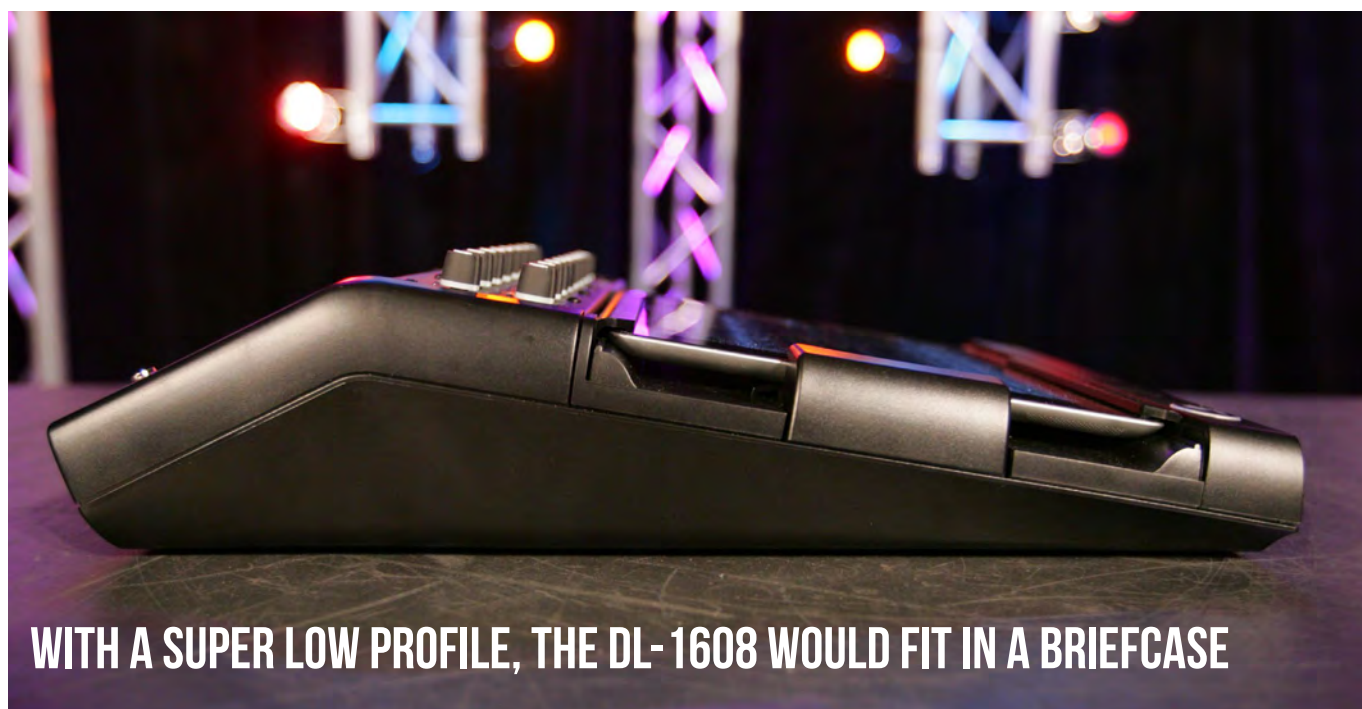
tracks from your iPad, the output shows up as a stereo channel on the Master Fader app, and you can route it to any of the busses. Pretty cool huh?

Accessing buss EQ is easy – just tap the little EQ graphic above the master fader. There's a GEQ for every output and while the frequencies aren't exactly what we'd expect to see they're close enough that to most users it won't matter. Channels can have names and even graphics from your iPad photo library assigned to them, and a bunch of channel presets for drums, horns and other instruments are included. You can make your own presets for channels and EQs too.

All the auxiliary busses can be switched Pre/Post on a

global basis (not per channel). I couldn't see an obvious way to mute all the outputs from a single screen, and to me that's the only real failing of the console. On the upside this is not a hardware limitation of the surface, so hopefully we'll see this appear in a future software release.

On-board effects are pretty good – a bunch of tap delays and assorted reverbs. I like that you can EQ the effect returns – other manufacturers forget to include this feature sometimes. Channel dynamics are accessed by getting into the channel PEQ screen, then swiping the whole screen upward.



WITH A SUPER LOW PROFILE, THE DL-1608 WOULD FIT IN A BRIEFCASE

# LIVE AND UNPLUGGED

Another swipe takes you to the effect engine parameters. Getting to these parameters was the only thing that sent me to the instruction book.

One of the nicest points about this console is you can run the iPad over WiFi and still control the console. This lets you wander about the venue mixing to your heart's content. The thing here is that you can't do this straight out of the box – you need to add a wireless router of some kind. We used a Linksys WRT54G with basic DHCP setup and it worked well. Downside is the extra expense, upside is that you can make your WiFi network as secure as you want to – we like that aspect a lot. Leaving the WiFi external was probably a good decision for Mackie.

The iPad can't stream music over the WiFi connection, so if this is your BGM source you'll need to leave the iPad attached. Once the show starts however, you can pull it out and go walkies. The changeover "re-sync" from plugged to unplugged is pretty fast, and the software remains very responsive when running wirelessly.

The DL-1608 is sonically good, and I quite like it. The operability is a definite plus, the only real drawback being lack of recallable gain. That, and if you lose the iPad you have no control (There's a locking device in the box which allows the iPad to be secured to the mixer as a theft deterrent). If you own an iPad already it's a great way to save some dollars on control surface – for what you get it's dirt cheap and does a heck of a lot.

BRAND: MACKIE  
MODEL: DL-1608  
RRP: \$1599 INC GST PLUS AN IPAD.  
PRODUCT INFO: [WWW.MACKIE.COM](http://WWW.MACKIE.COM)  
DISTRIBUTOR: [WWW.CMI.COM.AU](http://WWW.CMI.COM.AU)



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# Roland M-200i V-Mixer

V-Mixer now designed for iPad control

BY JIMMY DEN-ouden

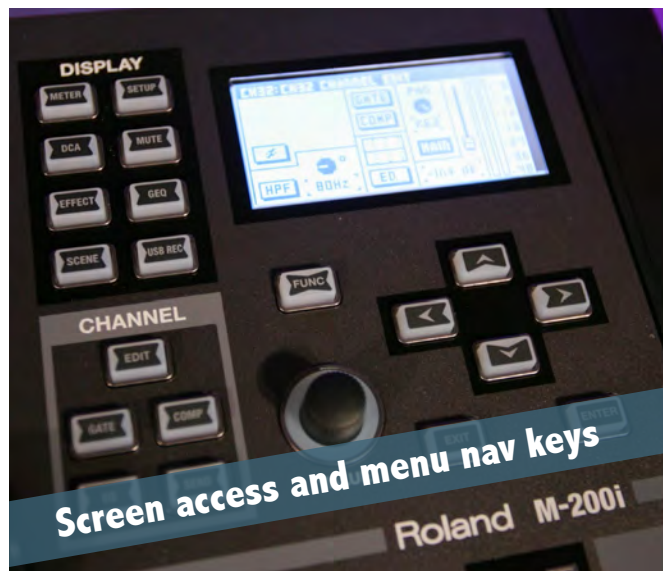
The Roland V-Mixing system includes consoles from the large M-480 right down to the M-300. The M-200i is the latest addition to the range, designed especially with iPad users in mind. 16 mic inputs, 8 line inputs and 12 analogue outputs put it in the same league as the M-300. It has V-Mixer written on the front in reassuringly large type – just in case the 5 second boot time wasn't enough to tell you that already.

The back panel of the M-200i includes 16 mic inputs on XLR, 8 line inputs on a combination of TRS (6) and RCA (2) connectors. Main stereo output is XLR as are the first 6 assignable outs. Assignable outputs 7-10 are on TRS connectors, and there's also an AES output. A single REAC port sits adjacent to a LAN port, as well as 3 USB ports.

This is a bit new for Roland – there are now ports for PC interface, USB memory stick, and the WLAN adaptor. The RS-232 and midi ports are the same as on other V-Mixers,

with the DOCK cable port being the thing which really sticks out. When using the iPad, you can use it either cabled via the DOCK port or wirelessly via WLAN adaptor. Power supply is external and this annoys me a bit – it's the only thing which makes the console look or feel cheap.

The M-200i is a standalone mixer in its own right, so we'll talk about this briefly first. You can (as best I could determine) use every function of the console without ever having an iPad connected. But it's the slow and cumbersome way to do it. Maybe I say this having spent too much time on the M-480, where just about every function has a button or knob on the surface.



Screen access and menu nav keys

Roland M-200i

The M-200i has a moderately sized backlit LCD screen, which is navigated via up/down/left/right/enter/exit keys and rotary encoder beneath it. An array of function keys adjacent to the screen get you to the right page for various channel, and setup functions. You can jump straight into screens for meters, setup, DCA assign, Mute assign, effects, graphic EQs, scenes and USB recorder. Channel access keys include edit, gate, comp, eq and send. Once you hit the right screen, it's a matter of tap tap tap wibble wibble tap tap to change the desired parameter. It's not great, but it's functional.



Two layers of 16 channels, bus masters and DCAs, and two user define layers

So you can use it without an iPad, but once you've tried the iPad interface you'd be unlikely to go back. It's great – and I only had the Beta version of the app. Plugging in the dock cable and placing my iPad on the holder, I ran the app. It located the console immediately and went through a "sync" process. You can run the app in "screen link" mode (where the console and iPad track each others page changes and such), or you can unlink and be doing different things on each.

In synchronized mode when you touch a control on the pad (gain, pan, etc) you can then use the rotary encoder on the console to modify its value. I like the dual size headphone outputs too. There is a default patch in the library which makes sense – mains then 8 auxiliaries, then stereo monitor out. I'd like a way to assign monitor level to a user layer, but remembering our software was Beta it may yet happen.

Describing how the app works would take a while, but the reality is that if you have some basic idea how a V-Mixer works then using the app shouldn't present any problems. I've included some screenshots to illustrate the basic layout of the app. Every function of the console that matters can be controlled from the iPad, and especially for things like patching and naming channels this is a big win – it's much easier on the iPad (and more colourful). You can link adjacent channels just like on a big V-Mixer. The overall functionality feels very familiar. Up to 4 slots can be loaded with graphic EQs or effects which can be inserted on busses or channels, and you can use another 4 external inserts though it will chew up some local IO. There are some limitations on the number of instances of each process – presumably due

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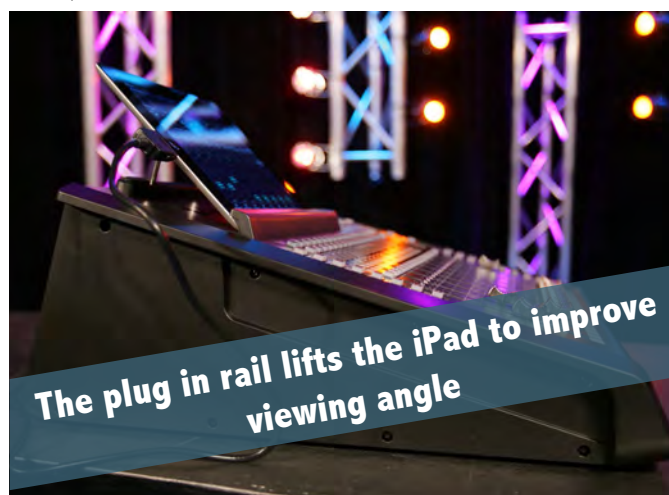
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to DSP sharing. At least every bus still has a parametric EQ. 32 mix channels are available, and this includes effect returns. The console has 8 auxiliaries and 4 matrix buses, but you can send to the matrices from channels so it's effectively 12 aux busses. There are 8 DCAs, and 8 user define keys. Two user define layers can host a mixture of channels, bus masters and DCAs. There's a USB recorder and you can get to this from the iPad. 32 mix channels seems like a lot for a 24 input console, but remember that once you connect a digital snake to the REAC port this gives you another potential 40 input sources to choose from. Patching is slow going, but we may yet see a "from/to" function implemented in future software – just like on the R1000. Ideally you'd do the patch once then save it as a library file.



The plug in rail lifts the iPad to improve viewing angle

I connected the M-200i up to an R-1000 recorder, assigned the requisite inputs and played back some tracks. Pulling together a mix happened pretty fast and it sounded very nice indeed. Plugging in a vocal mic, the pre-amps sound nice even when driven moderately hard. They do eventually go to gravel when they're seriously over-driven, but they fuzz up a bit first (when you start to hit clip) and it's not a nasty fuzz. Using the app wirelessly is pretty simple too; plug in the VLAN adapter, find the ad-hoc network on the iPad, then get the access code from the setup menu on the console. The app starts in an offline state so you need to tell it to go online. The only real problem with this is that it doesn't tell you when it goes offline, which happens every time you switch to another app, turn off the iPad, or press the home key.

When the iPad is connected via the dock cable, the iPod function is bussed into the console. It seems like iPod playback hits the console at a really high level, but I think this is an iPad thing and not a fault in the mixer. Once you break the physical connection there's no audio path, so playback is via cable only. The other upside to the cable connection is that it charges the iPad battery.

Sends on fader buttons for each aux bus make it fast to get to sends, and these are pressed in pairs to access matrix bus-



Not exactly full colour glory, but's functional



Mix interface on the iPad

ses. One of my mates really likes the iPad control because it means you can take your vocal and effects faders with you while you walk to the bar for a soda water. You can't really lock out features to run "inexperienced operator mode", but taking the iPad away would be a strong deterrent. In reality I wouldn't plan to take the M-200i to a gig and use it without an iPad, but it's nice to know that if the pad took a dive I'd still be able finish the gig without it.



BRAND: ROLAND  
 MODEL: M-200I  
 RRP: M-200I - \$3795 INC GST.  
 PRODUCT INFO: WWW.ROLANDCORP.COM.AU  
 DISTRIBUTOR: WWW.ROLANDCORP.COM.AU



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FEBRUARY  
2013

# ROAD SKILLS

GOTYE

COLDPLAY  
SIMPLE MINDS  
MARIAH CAREY  
SYDNEY SWINGS

BY CAT STROM

GOTYE PHOTOGRAPHER - Troy Constable

COLDPLAY PHOTOGRAPHERS -

Troy Constable & Guto Monteiro

SIMPLE MINDS PHOTOGRAPHER - Cat Strom

MARIAH CAREY PHOTOGRAPHER - Troy Constable

**If you've ever dreamt of touring the world with some of the best rock acts then keep aspiring because it can happen. One such local success story is Steve Richards, an ex-Chameleon guy who is now based in Los Angeles with no shortage of work. He has toured extensively with Rob Thomas, The Red Hot Chilli Peppers, Walking with Dinosaurs, Coldplay, AC/DC (21 months!), Jack Johnson, Ricky Martin and Lady Antebellum .**



GOTYE

Having worked his way up from technician to crew chief to programmer, Steve has had a big year. Lighting Director for Lady Antebellum, Associate Designer for Aerosmith with Cosmo Wilson, Lighting Designer For Cher Lloyd and now Lighting Designer for Gotye.

"For this tour I designed the lighting, programmed it and I'm touring it," commented Steve.

Gotye himself also played a large part in the visual presentation of the show with Steve describing his attention to detail as extraordinary.

"He commissioned all the custom content and animations and people have been blown away by the concept," said Steve. "Lighting wise, it's the most specifically programmed show I have ever been involved with; around 3500 cues. It's

quite a small show and not a huge lighting rig but every light on the stage has a purpose and works hard. They're not all on all the time, and there are a lot of cross fades. I spent nearly five days with the artist going through the show and came away with hundreds of notes. That was followed by 110 hours of programming during seven days in Las Vegas." Obviously the video dominates the visuals with this show and every specific lighting cue is designed to compliment it. Above the stage is a horse-shoe shaped truss dominated by VL3000 Spots, at the side are two 45 degree trusses at the front but no actual front truss. In the States and Europe the video was front projection so this was done to help avoid blocking the projectors.

"Besides you can get much more dramatic effects by having side and 3/4 keylight than washing straight onto the stage," added Steve. "There are no FOH follow spots, everything is done with the moving lights. We have the ladders with Martin MAC301's on them essentially playing along to the music - what the artist calls 'stunt lighting'. At the bottom of the ladders are some MAC2000 Spots and there are some Atomic Strobes at the back. It's not your average light show with lots of chases; it's heavily choreographed to match the video content."

A MA Lighting MA2 console was chosen by Steve specifically for its networking and time-coding abilities. The vision is triggered by the drummer via Ableton Live.

"It's good for Gotye as he is so specific about timing," remarked Steve. "Although, it's amazing how much of the music is played live. They are all extremely talented musicians"

Front of house sound engineer Lachlan Carrick is equally at home in a studio, in fact he spent the five years before touring with Gotye happily working away on album production, often with long-time confidant Franc Tetaz.

"I really enjoy cross-pollinating ideas from each discipline," he commented. "For example, there are plenty of studio processing techniques that can be applied live, and vice versa." The audio at the Sydney show was exceptionally good, and Lachlan explains that by having a strong vision of how he wants the music to sound at the outset is key for him. Then letting that vision inform every decision along the way is key, whether it be mic choice, mic placement, PA spec, console choice or plugin usage.

"And I try to not to just do something because Coldplay or whoever is doing it!" he noted.

With over fifty instruments on stage, Lachlan spends a lot of time thinking about how best to lay out the console, to make sure it's easy to get around quickly.

"I use a fair bit of console automation song to song, partly to mute any inputs that aren't being used," he explained. "I also tend to ride the faders heaps. Again, I know how I want it to come across, and if I have to work the faders hard to get there, I will. I use an Avid Venue Profile, all four input layers for this 10-piece configuration. The main reason I use the Venue is that the plugins are integrated, hardware hosted, and easy to automate, which makes workflow on a complex show like this fast and intuitive. I find the board can sound vintage and spongy, or modern and tight, or anywhere in between, depending on how I approach the plugin processing."

All of Lachlan's effects are TDM plugs running in the con-

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sole. He uses heaps of the Waves gear such as Renaissance Reverb, R-Channel, R-Axe, Q10, S1, H-delay, H-comp, SSL master bus comp, CLA660, L3 and the NLS console emulation. He also uses an Eventide H3000 and reverb, TC Non-Lin, SPL Transient Designer and Massey Tape Head. When mixing FOH Lachlan's priority is the vocal - may sound obvious but how many shows suffer from trying to be too loud, and losing the vocal in the process?

"People want to hear the words!" said Lachlan. "So when I'm tuning I make sure the vocal is clear and sounds great first. Then I work out where I sit with gain before feedback, and set the gain structure up around that, using the matrix as the final gain stage before hitting the Lake. So I know I'll always have enough gain to sit the vocal out the front of the mix. Keeping the show as dynamic as possible is another way to help with this. The softly-sung sections need heaps of vocal gain, but when the loud parts kick in, there's enough headroom to create some real excitement. I often do little rides on the master fader to enhance this. EQ-wise, I prefer to work hard on the system tuning. I'm not afraid to really hack in to the low-midrange, especially indoors, if it gives me the linear response I'm after. Then I find I'm doing much less cutting on individual input channels, and that feels much more creative to me."

The PA on the Australian run is the same as what they have been touring in the US and EU, the d&b audiotechnik J-Series. Lachlan describes it as very musical, stating that it has a huge sweet spot volume-wise.



"Some PA's sound great when they're cranking, but fall over at lower levels," Lachlan said. "The J-line accommodates the Gotye show very well. It can handle the large dynamic window we need."

**For the Australian Gotye tour the PA was provided by JPJ Melbourne, monitor system provided by Monitor City and the lighting by PRG.**

LIGHTING CREW CHIEF: AL SPIKER  
DIMMERS/ MOVING LIGHT TECH: BEN BROOK  
LIGHTING TECHNICIAN: TAYLOR HYSLOP  
PA TECH: JESSE MAHONEY  
AUDIO TECHS: CONOR DUNNE, SIMON HARDIMAN,  
BEN MILNE  
MONITOR ENGINEER: BEN SHAPIRO  
MONITOR RIGGER: MIKE DELIA



**By the time Coldplay arrived in Australia with their MyloXylo to show there were two Australian audio crew members who were more than familiar with the impressive audio set up. JPJ Audio's Conor Dunne (Crew Chief) and Josh de Jong (Head System Engineer) had spent the European summer on tour with the band having been contracted to do so by Wigwam Acoustics.**

**"So by the time the show arrived in Australia we had a good grasp of everything that was going on as it was essentially the same show," commented Conor. "We just picked up from where we finished off in Germany back in September and everything ran very smoothly."**

For the past two years Conor and Josh have split their time between Australia and Europe, essentially never seeing a winter, and by doing so have broadened their experience.

With only minor gear changes due to unavailability, the audio set up was the same as the rest of the tour with FOH Engineer, Dan Green mixing on a DiGiCo SD7 chosen for its flexibility and massive input/output capability. Green manages to ensure the message and emotion of the performance coming across to the audience, keeping Chris Martin's vocals very clear and upfront in the mix. The SD7 was configured to give the audio team 127 channels, 16 mono, 24 stereo Auxes, 12 group busses and 8 matrix outputs.



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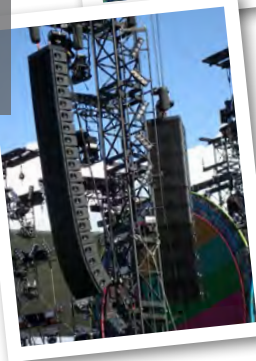
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A Dolby Lake system looked after the EQ levels as well as AES and analogue I/O matrixing, before the digital and analogue signals travel to the d&b audiotechnik D12 and R1 control system. The main PA comprised d&b J-Series cabinets - 64 J8 speakers, 8 J12's and 24 V8's, 32 JSubs and 10 Infra Subs teamed up with 8 Q7's, 4 Q1s and 102 D12 amplifiers. The three delay towers consisted of 36 L'Acoustics V Dosc cabinets and 4 SB218 subs. 54 L'Acoustics Kudo in 9 hangs were flown from the main roof beams in Etihad Stadium to get coherent sound to the very top rows. It is the first time such a large delay system has been installed in the venue and provided very impressive results. The addition of these delays gave a grand total of 20 flown speaker arrays.

Over in monitor world, Monitor Engineer, Chris Wood used an Avid Venue Profile with a mixture of IEMs and on stage wedges chosen including four d&b auditotechnik M2 wedges and a d&b J-SUB.

**d&b J Line techs** - Craig Gordon, Guto Monteiro and Dakota Crouch

**Support Act monitor tech & engineer** - Shaun Ayles

**V Dosc Techs** - Duncan Kaye and Will Ramage

OPPOSITE: MAIN J LINE SYSTEM OF 20 DEEP J8 BOXES, ALONG WITH A 10 DEEP ARRAY OF FLOWN J SUBS BEHIND THE MAIN TOWER. NOTE THAT THE FLOWN SUBS ARE AT A 30 DEGREE OUTWARD ANGLE. WHICH SERVES 2 PURPOSES; TO GET SUB BASS COVERAGE INTO THE STANDS AND TO ALLEVIATE THE TRADITIONAL 'POWER ALLEY' WHEN ALL SUBS POINT STRAIGHT FORWARD.

RIGHT: SIDE ON VIEW OF THE MAIN D&B J LINE SYSTEM. ALSO VISIBLE IN THE BACKGROUND IS THE J LINE SIDE HANG, AND IN THE FOREGROUND, PART OF THE J SUB AND J INFRA GROUND SUB ARRAY.



SIMPLE MINDS

A Day on the Green

Summer time means the return of the A Day on the Green winery concerts with one of the first featuring the monster line up of The Models, The Church, Devo and Simple Minds. OK, probably not exciting to anyone under the age of forty but these bands still know how to put on a good show.

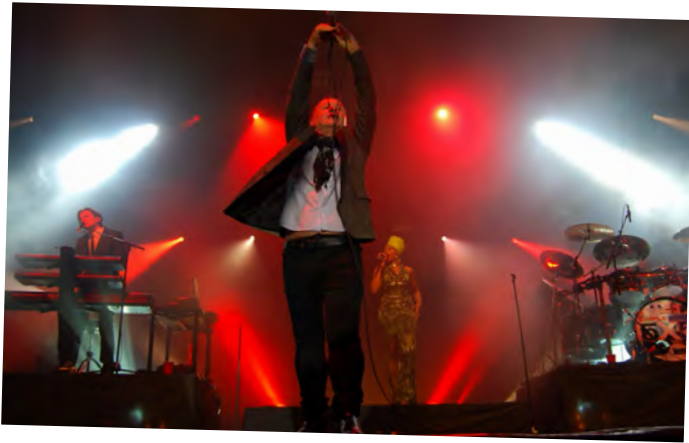
**Whilst Devo relied on a back drop of video played through Martin LC Panels, headlining act Simple Minds opted for no video as well as no LED fixtures - heavens above!**

Lighting designer Stephen Pollard has been with the band since their early days of glory and he delights in being back on the touring circuit. To suit the Australian shows and the budget, Stephen designed a fairly straight forward rig comprising mainly of Martin MAC700's, MAC2000 washes, ETC Source Fours and some floor lights.

"You can't beat that feeling when the band hit the first chord of a song, the crowd goes nuts and the hair is standing up on the back of your neck," he said. "There are no LED fixtures as I wanted a true colour quality. This band doesn't need video technology although I did consider using some of the video content from the European tour with the screens Devo are using but then I decided it really wasn't necessary. I'd rather have a black background with tonnes of smoke."

That doesn't mean that Stephen never uses video; the last Linkin Park tour that he designed used heaps but more as another light source creating colour, pattern and luminosity. He's not a fan of film footage being used.





"I can stay home and watch TV," he remarked. "I prefer the band to be in a three dimensional environment whereby they are performing inside an environment you're creating with the architecture of your beams of light. You have to go with the flow when it comes to festivals and I'm certainly not as finicky as I used to be."

Stephen used a MA Lighting grandMA classic console - he's still not too sure about the MA2 -which he had set up to emulate an old Avolites console.

"I have everything on faders and I run it without many cue to cues," he explained. "I do the cue to cue thing when we use video but still give myself the ability to rock along with the show and have some fun. I couldn't just sit there and press a button. A lot of younger LDs these days have so much technology at their fingertips it's almost as if they're designing out of a catalogue."

## Entertainment Installations has used their new Martin Audio MLA Compact on Sydney Swings, an outdoor show held at the Sydney Botanic Gardens.

These shows were a good challenge for the PA as it's an open space with an approximate throw of 80m and a noise sensitive area. The PA also had to survive outdoors for over two weeks and despite bucketing rain and hail as well as the harsh Sydney summer sunshine, the PA didn't miss a beat.

"The MLA does what it says on the box - using the on-board processing we had a 1db loss from stage to end-of-coverage (80m) and a really steep level drop after that - ending up with no noise complaints from surrounding areas and other events in the gardens," remarked Neale Mace, managing director of Entertainment Installations. "It sounds great, and, to my ears, it's voiced very similar to our existing Martin Audio W8LC Line Array, however, it seems louder and seems to have heaps of headroom."

# Sydney Swings

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# MARIAH CAREY



Mariah Carey has visited the East Coast of Australia with a whirlwind three-date tour, the first in a number of years so a new production was created.

Although Mariah Carey toured with all of her key personnel, including her tour manager Nick Jeens, the production was sourced and co-ordinated by well-respected sound engineer/production manager Steve Scanlon. Rohan Thornton was bought on board to coordinate the lighting and vision elements of the production. Rohan has recently left full time employment with the Nine Network and is currently involved in a number of very diverse projects in lighting design, vision design and production management roles. During the process Steve was appointed as sound engineer of the tour, with Rohan assisting in a more broader production manager role as the tour developed.

The main difficulties facing the tour was size and restrictions, particularly weight restrictions which meant that all elements of the rig had to be altered in some way for each venue. To complicate things further, all of the production rehearsals took place with the smallest and most different rig at the Gold Coast.

The production, video and lighting design was created by Emmy Award winning designer Jonathan Goldstein assisted by lighting director John Decoste. The lighting suppliers were PRG and the vision suppliers were Big Picture. The massive lighting rig included VL3500 washes, VL3000 spots, Clay Paky Sharpys, Martin Atomics and MAC101s, Colorblaze and lots of PRG BAT Truss.

“As the turnarounds were very tight, the use of BAT truss was the difference between being able to do the tour with one rig and not,” commented Rohan Thornton. “The PRG crew worked tirelessly under the direct leadership of Chris Lawrence.”



The vision content was developed and created by Jonathan Goldstein and was played off two coolux Pandora's Box dual output machines. The images were mapped over eight separate areas including a massive rear screen that stretched just over 36m and a fascia on the onstage risers.

A combination of Highlite 12 and FL12 along with rear projection iMag was selected by necessity at the Gold Coast. Flyer 12 (FL12) was the screen used for the remainder of the tour.

There was an iMag component directed by Ben Alcott with the camera gear also being supplied by Big Picture.

"It was a short but pretty gruelling run that went well due to the commitment and dedication of all of the touring, local and venue crews," remarked Rohan. "The other vendors got into the team spirit to make the run a success."

One thing to note is that this was the very first time Etihad Stadium was used in intimate mode. There were many meetings and discussions that lead up to the event and of most concern was sound reinforcement.

"Scanners pulled a fantastic mix with a PA that Shappie (Ian Shapcott) and the boys put together," said Rohan. "All of the Etihad staff were fantastic and supportive. All would agree that the night was a massive success, with hopefully more events to come."

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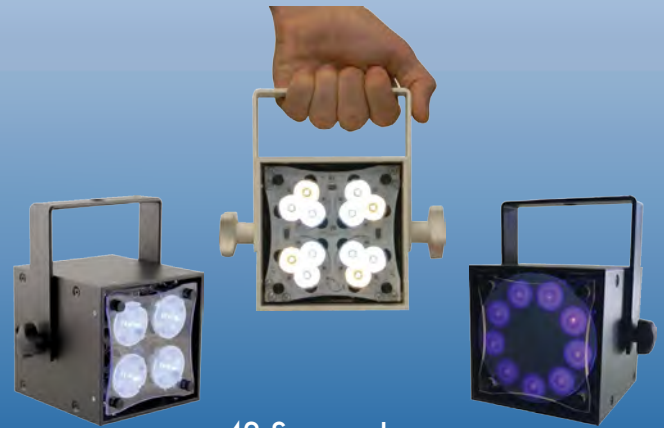
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### Most of us will now be working under the new Model WHS Act and Regulation.

In 2008 all States and Territories agreed that Australia should be covered by identical WHS (Work, Health and Safety)

legislation. Sadly in the four years it took to write it, governments changed and some reneged on their promise. There are a number of significant changes in the new Act and Regulation that you should be aware of.

First of all the term 'employer' was abandoned and replaced by **PCBU**, a **P**erson **C**onducting a **B**usiness or **U**ndertaking. The argument behind this change was to better reflect our current workplace arrangements. Over the last 30 years we have moved away from a classic employer / employee structure to a much more open structure dependent on casual workers, contractors, etc.

So the term employer lost most of its meaning within a workplace environment increasingly dealing with people who were either self-employed or working through a labour-hire company. This confused matters as to who was really responsible for each others health and safety. PCBU's, better get used to that term, it is the core of the new legislation and is the entity on whom the Primary Duty of Care is imposed.

The core definition in the WHS Act (Section 5) is:

Meaning of "person conducting a business or undertaking"

- (1) For the purposes of this Act, a person conducts a business or undertaking:
- whether the person conducts the business or undertaking alone or with others, and
  - whether or not the business or undertaking is conducted for profit or gain.

Basically what we used to call a business or a company is now a PCBU. The reasoning behind this approach is that anyone who conducts a business or undertaking influences one or more elements that go to the performance of work, and therefore may affect the health and safety of those undertaking the work or others affected by the work undertaken. You do not necessarily have to employ people to be in a position to influence the way work is done or to have an effect on the health and safety of the people doing the work. A sole trader can still impact the safety of a workplace by their actions or inactions. Examples of PCBUs would be companies, franchisees, self employed, contractors and sub contractors. There are a few exemptions but those are a little tricky. For example, a 'volunteer organisation' is not deemed a PCBU provided that no person is employed to carry out work for the organisation. But if they would employ an accountant to look after their accounts they would no longer be exempt. Same for a charity, social or sporting groups, all good until you employ someone to run the clubhouse bar for example, then you are a PCBU.

It is also important to understand who are workers under the WHS Act.

The term **worker** has replaced the term employee. Again, our workforce has changed and that had to be reflect-

ed in the new act. The term employee implies an employment relationship that is no longer relevant for many people and businesses.

So, who is a worker under the new definition? Here's the list from the Act (Section 7):

- an employee,
- a contractor or subcontractor,
- an employee of a contractor or subcontractor,
- an employee of a labour hire company (crewing service) assigned to work in the business or undertaking,
- an outworker,
- an apprentice or trainee,
- a student on work experience and finally,
- a volunteer.

What this means is that anyone you bring on-site or who does work in your office, factory, warehouse, etc. is a worker under the Act and you have a duty of care to look after them. And it doesn't make any difference whether you pay them or not, volunteers are now also workers.

Workers have a duty to look after themselves, other workers and **others**.

Others – that is a broad term for anyone who visits your workplace but doesn't do any work. So those can be the guests invited to a function, people buying tickets to a show or concert but also your client who may pop in to see how things are going.

And they can also be people in a park if you do a 'green-field' event or shoppers in a shopping centre if you do a gig there.

Workers and Others owe a duty to a PCBU. Specifically they:

- must take reasonable care of own health & safety
- must take reasonable care that conduct does not adversely affect others
- must comply, so far as he/she is reasonably able, with instructions

In addition workers must cooperate with reasonable notified policies and procedures.

And a final definition that causes some confusion is **Workplace**. What is a workplace? The WHS Act (Section 8) defines it as follows:

A workplace is a place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. 'Place' includes:

- a vehicle, vessel, aircraft or other mobile structure, and
- any waters and any installation on land, on the bed of any waters or floating on any waters.

What this means is that a workplace is not limited to your office, factory or warehouse, it is a wherever people are sent to work, or whilst travelling to / from a worksite, including to / from the workers residence, to carry out your work.

In the next instalment we will look at what this 'Primary Duty of Care' is, how it affects you and what you need to do to stay on top of things.

Finally, a blatant plug. The Event Safety Alliance Australia is now accepting membership applications. We need members to be able to be heard when it comes to health and safety in our industry.

Have a look at <http://www.eventsafetyalliance.org.au/membership.html> and be heard!

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## AUSTRALIAN ENTERTAINMENT TECHNOLOGY WEEK ANNOUNCED

After almost two years of surveying, discussing and negotiating ACETA is very pleased to announce the inaugural Australian Entertainment Technology Week in the last week of July 2013.

**We are also pleased to announce the first partners in this industry-focussed week are ALIA, AES, ACETA and ENTECH, with discussions underway for others to also become involved.**

Can we say, the vision and support of these organisations should not be underestimated or undervalued. Credit also where it's due, the support of Julius Grafton at CX has been critical. Julius attended as owner of CX Roadshow, but as we all know, Julius is the editor of this august magazine and very much his own man, which means he will do whatever he believes is right no matter whose toes he might tread on. So when he does support something it's doubly sweet. It is because all these people recognised the opportunity, and we knew we had the backing of the industry, that these discussions have come this far and we are set to see the first Australian Entertainment Technology Week, a strongly industry-focussed week and the destination for all that you have been asking for. This means that what is truly being created is an event that is by the industry for the industry. Frank Hinton, president of ACETA and the chair of the project said, "Only as an industry working together could we attempt to resolve such a complex issue that involved so many different parties and which so critically affects the sustainability of our sector. So ACETA was set up to be that industry body that could take up the challenge. It's taken longer than we had anticipated, but it's an accolade to the industry that so many have agreed to work together for the common good. Thanks must go to everyone who has thrown their weight behind it."

**To recap on the long and winding road to get to here. At the start, the ACETA board developed a four point strategy:**

1. Survey the industry so we knew what you wanted
2. Draft and circulate a white paper based on the survey and board discussions
3. Convene a liaison committee for all the stakeholders
4. Take the outcomes from that committee forward.

The key part of the draft paper was the introduction of the concept of Australian Entertainment Technology Week: a destination week with as many shows and industry association events as possible, held at one time in one place. In short, an attractive and compelling destination event for our industry. This, of course, sounds easy, but as you can see it's taken considerable time, though it would be hard to argue that the outcome hasn't been worth it.

The first liaison meeting was interesting. Invitations were sent to ALIA (lighting), Audio Engineers Society, Australian Audio and AV Show, Australian Music Association, CEDIA (consumer electronics), CX Roadshow, ETF (which runs ENTECH), Diversified (which runs Integrate), InfoComm and SMPTE (and Expertise Events which runs the SMPTE



Australian Commercial & Entertainment Technologies Association

show). Not everyone attended, but most did and, critically, we had the three private trade show organisers in the same room. There were 16 attendees at that first meeting and the minutes record that there was a harmonious willingness to listen that was very positive.

Something then happened between the first meeting and the second. Diversified ran their first Integrate since buying the show and by all accounts deemed it to be a big success and were busy selling the next show before the 2012 event had closed. This meant there was no sign of a date move so the 2013 show was clearly not going to be in any joint week or co-location structure as per the white paper. Seems Diversified has other plans for Integrate. The AMA and CEDIA also removed themselves from the discussions. But the support from others was resounding. So here's the story so far for the inaugural Australian Entertainment Technology Week:

ALIA and AES plan workshops, presentations and activities to bring their members into the week for a valuable education and networking event. AES, in particular, is experiencing a resounding growth in membership and see Australian Entertainment Technology Week as the opportunity to build on that energy and dynamism. ALIA has long been a supporter of ACETA and sees this as a further extension of that, whilst also delivering for their members. The plans here are still very much in their infancy, so more information over the next weeks.

ENTECH and ACETA have signed a partnership where ACETA provides expertise to ETF (which runs ENTECH) to help them develop the show into an event that is even more relevant and valuable. This will mean a beefed up workshop program not just for delegates, but also for exhibitors; a new Australian Hall of Manufacturers to showcase the many companies creating both boutique and mainstream products onshore and to provide them with a cost-effective package to help them through the doors; and a new music products section for those companies targeting pro customers. ACETA members which exhibit will also receive added value benefits, notably free forklifts, free carpet, no ENTECH administration fee and free lead tracking devices. In return, ETF will pay ACETA \$5,000 upfront for our expertise and a small commission of between \$200 and \$300 for every ACETA member that signs up to exhibit, and every exhibitor that participates in the Hall of Manufacturers or the music products section.

At this point, it's important to say: ACETA will not be selling ENTECH stands. Nor will we be pressing our members to attend. The sales relationship will be entirely between ETF and the exhibiting company. Our role is to work with ETF to create an event that we believe will hit the major buttons for most of the members of our industry, both exhibitors and delegates. If you choose to attend (or not) that's your business decision and we respect that.

What are those 'major buttons' that you need the show to hit? For exhibitors, getting lots of the right delegates through the doors is first on the list and ETF has that message loud and clear, and we're working with them on what needs to be offered and communicated to build that big destination event we've talked about from day one.

We believe that the event should also deliver more to the exhibitors than a 'stand on the booth and greet customers' moment. So, as mentioned, we are working on sessions for exhibitors. That may sound a bit mysterious at the moment because it's still being planned, but, as they say, watch this space. And no, we aren't expecting you to abandon your booth for hours on end, we appreciate that you have to keep it manned appropriately.

For the music products area, this is not a replacement for AMAC. Where AMAC focusses on the buy-sell between retailers and wholesalers, ETF will be working on inviting the pro customers such as the performing arts centres, hotel buying groups, education, broadcast, and studios. Many music products sell to these customers, from grand pianos to mixing desks, but not every music products wholesaler has the resources to reach these customers easily. ETF has made the commitment that ENTECH will help to address that. For delegates, it's about making Australian Entertainment Technology Week the must attend destination amongst a host of options. It's where they can not only find out about product, but also how it's being used by others around the world, and what's happening in the future that will affect their professional lives. As well as catch up with industry mates, new and old.

Will it work? Time will tell. Is there enthusiasm and commitment to the week? Absolutely. Have we reduced the number of shows? No. Sadly not yet. Seemingly, that proved to be a step too far at this time. But what we have been able to facilitate is bringing together a range of organisations and events to build something bigger than 'just another show'. The aim is that this will then deliver a real choice to exhibitors and delegates about where they want to attend in the very crowded trade show calendar in 2013.

**Should anyone want a copy of the white paper, authored by president Frank Hinton, please contact us at [info@aceta.org.au](mailto:info@aceta.org.au)**

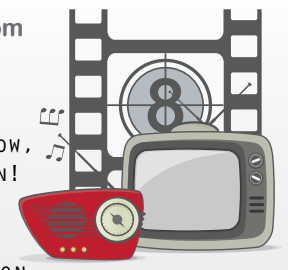
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**OX ADVERTISER INDEX ISSUE 78 FEBRUARY 2013**

- Amber..... 39
- Audio Products Group.....45,69
- Bosch..... 41
- Bose..... 27
- BS Sound..... 80
- Cases.com.au..... 23
- Chameleon Touring Systems..... 59
- Clay Paky Australia..... 17
- CMI.....FC,33,65
- Entech..... 49
- Entertainment Assist..... 80
- Event Services..... 80
- Framelock Structures..... 61
- Jands.....IFC,3,73,79
- Juliusmedia 2013 Courses..... 13
- Meyer Sound Australia..... 7
- Mojo Barriers..... 53
- National Audio Systems..... 55
- Nightlife..... IBC
- Norwest Productions..... 28
- Penn Elcom..... 46
- Power Stage..... 80
- PRG..... 37
- Production Audio Video Technology.. 15

- Rare Audio..... 57
- Rentalpoint..... 80
- Riedel..... 43,47
- Rosco..... 75
- Subscriptions..... 71
- Syntec International..... 29
- Technical Audio Group..... 9
- The Resource Corp..... 51
- ULA..... 77,BC
- Yamaha..... 25,67

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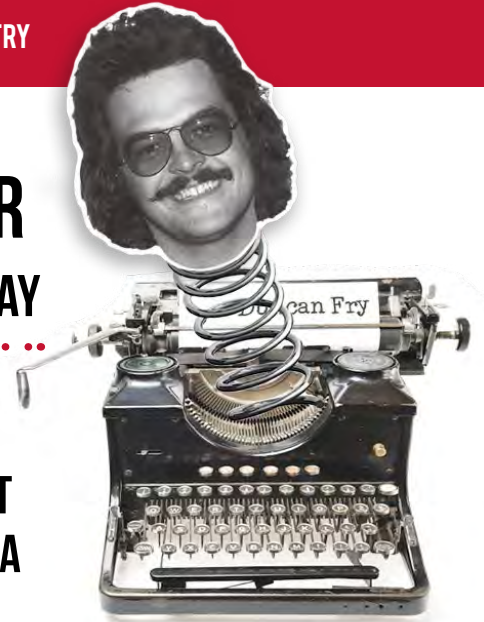
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# LITTLE ONES GO IN AND OUT EASIER

## LESS IS MORE, SO TO SPEAK...MORE OR LESS, ANYWAY

**SINCE IT'S THE START OF A NEW YEAR, I'VE MADE A NEW YEAR'S RESOLUTION TO SHRINK THE SIZE OF MY CURRENT SYSTEM TO STILL KEEP THE SAME OUTPUT LEVEL BUT IN A MORE COMPACT AND LOADING-FRIENDLY PACKAGE.**

All this came to me while I lugged the seemingly endless amount of equipment out of the most recent gig at around 1.30 am the other night. As I pushed, dragged and rolled stuff out to the trailer I started to drift away, thinking "What would be the smallest possible 'real' PA you could put together?"

By real, I mean one that can handle a complete band, everything miked up or DI'd, three or four singers, and fit in the footprint of a standard 6' x 4' two wheel trailer. The minimum amount of equipment that can do the gig, and get in and out in as fast as possible, with the least amount of trips back and forth from stage to trailer.

Maximum efficiency, minimum size, at a cost that would still allow me to make a profit on each gig, amortized over say a six month period.

Surely that's not too much to ask in these high-tech days?

Like all of us I'm not getting any younger, although not yet up to the stage of Bob Dylan (aka. Mr Cheerful) who sang 'He not busy being born is busy dying'\*, so it also has to be easily loaded in or out by one person (or two if there's a flight of stairs involved).

And as far as I'm concerned, any more than one flight of stairs and someone else is going to get the gig! We've had amplified music for just about a hundred years now; it's about time that venues and reception centres got the message on what's involved.

So here's my shortlist of equipment that could be shrunk, combined, lightened, or just got rid of altogether:

**SPEAKERS:** Wood or plastic? Onboard or external amplifiers? These are the vexing questions every small operator has to answer, and they are not easy ones. Well-braced wood boxes sound the best but are heavier; plastic ones are lighter and cheaper but to many people's ears don't sound as good. However, since it's a given that we'll be having subs for everything under 200 Hz, we won't be trying to push 40 Hz

though these little boxes, so a couple of good sounding 12" and horn plastic ones should do the trick. Ones with on-board lightweight digital amplifiers if possible, so there will be no hernia-provoking amp rack to lug around.

**SUBS:** And speaking of hernia-provokers, subs can often be the largest/heaviest thing in the trailer, so as long as we accept that, we can work with it. We need subs because every PA system gets a paradigm shift in quality with some good sounding subs, rather than trying to squeeze some low frequencies out of boxes that were never designed for reproducing them. If they've got the amplifier inside, well that's great. But if they haven't, why not strap an amp onto the top of one or screw a little 2RU rack onto the top of one so they can travel around together? Subs are too heavy to carry, so they need to have wheels or wheel dollies, so let's get as much wheeled into the gig in one go as possible. At the moment I can fit both subs and an amp on a wheel dolly, so I don't see much room for improvement there. But I am planning to put a two-channel amp inside one of them, and a tethered linking cable inside the other.

**MIXER:** Digital or Analog? Everyone mixing can come to grips with any analog desk. But digital mixers are a runaway train that is rattling into the station at breakneck speed. Can't stop it so we might as well embrace it.

Since the mixer is mainly operated by me, it's worthwhile learning a common one inside out. Something like one of the new Yamahas, or the PreSonus, or Julius' favourite digital mixer, the new Behringer X32. This one looks like being the game-changer for digital. I suspect that in the future its launch will be seen as being the tipping point for the change from analog to digital. The trickle-down effect, with pricing diving from astronomical down to economical, means that digital mixers, with masses of onboard EQ, effects, dynamics control, and more, will suddenly be everywhere. They will lessen the amount of outboard gear I'll need, if nothing else! If only they all worked the same. Sigh.

**\* A GREAT LINE FROM IT'S ALRIGHT MA I'M ONLY BLEEDING, ON THE BRINGING IT ALL BACK HOME ALBUM**

**AMPLIFIERS:** Unless you're heavily committed to two channel amps, why not get a high-powered four channel one? That'll give you Left and Right boxes and two subs, in one amp. Or if your Front of House boxes are self powered, the same amp will give you enough power to drive four bitchin' monitor sends! And four separate monitor sends are probably more than enough to keep track of through the night.

**MONITORS:** I've already got some very small monitors that have kept singers happy for a couple of years now, with no complaints at all. All they do is vocals, with maybe a little bit of instruments mixed in if necessary. Any guitarist who rolls up with a Line 6 Pod or similar gadget instead of an amplifier deserves what he gets, which in this case will be sharing a monitor send with the drummer!

And, if I can get a good price on a couple more powered 12" and horn boxes, that will mean they can double as extra FOH if needed for big rooms, or as more monitors for bigger bands.

**MULTICORE?** I've got one, but usually it only comes out for corporate gigs that are happy to pay the extra whack that I charge for it. For the sort of function I normally work at, side of stage is fine. Paranoid function managers freak out enough when you wheel in the subs, let alone take up space in their immaculately prepared ballroom with a mixer and long black cable that everyone might trip over! But hang on a minute - many digital mixers can be remotely controlled with an iPad and wifi. Suddenly I can sit on a chair anywhere in the room and control a mixer that's parked at the side of the stage. No multicore, digital or analog, needed...as long as my iPad battery doesn't go flat!

The first time I saw it done I was very impressed - even more so than when I sent and received a fax from my laptop twenty five years ago!

**LIGHTING:** Not really part of sound, but having the house lights on all night just doesn't cut it for atmosphere! It's an essential item for making the production look good, and I can charge for it accordingly. Longtime readers will be pleased to know that my semi-legendary Par 43 lights (made from Nescafe cans) have been pensioned off and replaced by four Par 64 LED cans, with built-in DMX control. All plugged together, they run on a medium chase all night. Sweet! No lighting trees, to save space; the subs have poles that run to the top boxes, which have T-bars on top of them and two lights clamped to each of them.

**WHEELS:** It goes without saying that everything should have wheels or a wheel dolly. We're only born with one back and need to look after it. But a three wheel 'walking up stairs' trolley is worth every cent it costs, and will soon pay for itself with all the money you charge for the 'extra loader' you had to hire (ho ho) to get up the stairs!

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