



MONTHLY TECH NEWS
For Entertainment and Broadcast

CX 62, AUGUST 2011 . \$5.50

FAKE SHURE INFESTATION:

Parallel imports may be fakes

ENTECH & SMPTE:

The reports, the punters

DIGITAL LIGHTS:

Green and Saving

CIRCUS OZ:

Steam Powered Tour

DELLTONES:

Would you believe it?

PRO AUDIO:

Constellation; and EAW at 33



SOUND • LIGHTS • VIDEO • STAGING

ISSN 1320-5595



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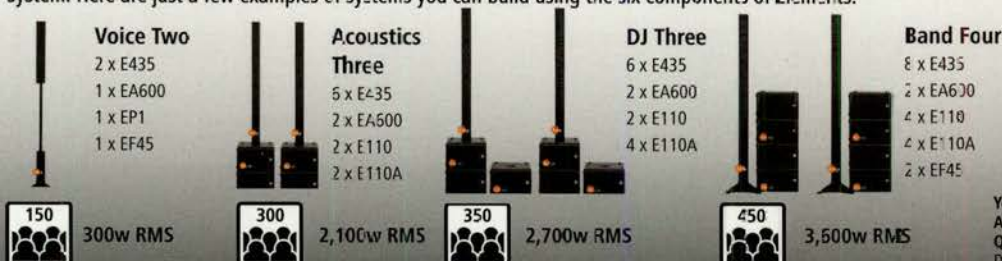
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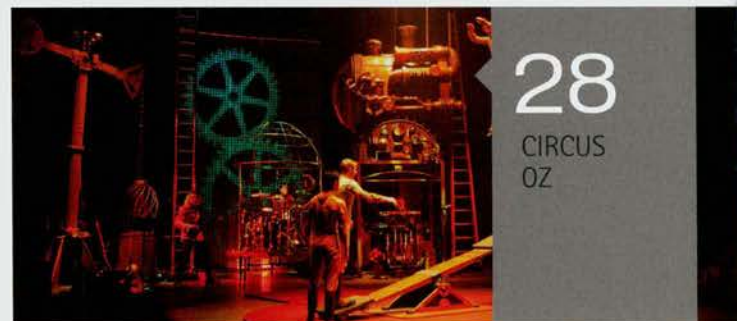
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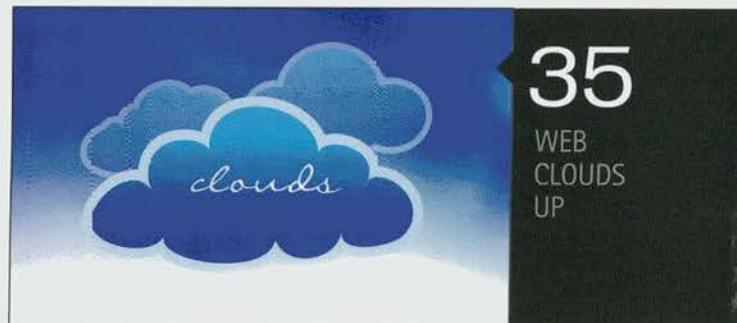
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I'M PROUD TO BRING YOU FURTHER REFINEMENT with this issue of CX. Changes include a new design team NEOWerk, based in Germany and Equador. We could not find anyone like them in Australia. They have been developing CX2 for us. It launches soon, and this issue is the first hint of what that will look like.

We are not segmenting CX like the UK trade press, where whole sections of magazines get turned into new separate magazines, and advertisers are asked to spend double to be in both. Rather, CX2 is mostly the same content you are reading now, but rendered differently onto an iPad app. Just wait till you see it!

With continual improvement of our visual, we are also exploring themes more deeply. A team of us spent days at SMPTE and ENTECH talking to industry and spending collectively more time than ever before understanding better where our industry is headed. Our CX-TV crew collected many hours of interviews.

As you read this, CX journalists are travelling across Australia. I have spent a week in Perth, previous visits were short by comparison. We have made a big commitment in launching the CX Roadshow, which brings a dozen different firms to each capital city next February to visit you. Watch this space. CX is a broad church. We just turned 21, can you believe that? But the future direction of this media outlet is clear and transparent. As the industry accelerates so too does our coverage which now spans print, e-zine, e-News, ipTV and includes our Facebook page where we share gossip. Content is king. Although we have multiple channels we essentially have

CX EDITORIAL

the same content and theme running. Our advertisers are usually paying only once but getting more – you'll see how this works in CX2 which is designed to attract new and lapsed readers first and foremost, not gouge advertisers.

Last November I sat with 400 publishers at an awards lunch. CX was nominated in a category. They were all moaning at working harder for the same result. Common was 'how do we monetize the web?' In many ways that lunch set the scene for what you are now seeing here at CX. Minus the 'monetize' part.

The harder we work the greater the flow of ideas. CX is an information and education company. This need lines of communication, which in turn requires an investment of time. We've quadrupled the hours we put into CX in just twelve months. It doesn't mean working longer, it means hiring more people.

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Finally thank you for all the goodwill. It's no secret this was a troubled camp towards the end of last year with pestilence and tribulation in abundance. Closing our unsuccessful college campus cost me \$1.5 million. Worse, it had corroded the willpower of our team. In hindsight we made the right decision.

– Julius



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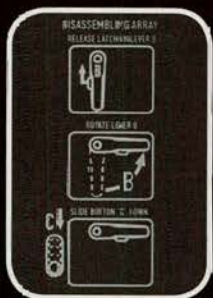
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News

CX INDUSTRY NEWS



Fake Audio Ripoff

Parallel imported Shure may be counterfeit

CX goes undercover to reveal that parallel imports may well be dangerous fakes that stop working, deliver bad audio or don't arrive at all. Worst of all they break multiple laws.

Shure Incorporated along with major microphone manufacturers (and other major audio brands) are fighting a covert battle to shut down factories making counterfeit audio products and passing them off as genu-

ine. CX purchased a job lot of fake Shure, including an SM58 vocal microphone, SM57 instrument microphone and PGX wireless microphone system from a factory (pictured p10) known as Shenzhen Longer Electronic Technology Co., Ltd in Baoan District of the Shenzhen Special Economic Zone.

the products appeared genuine. The price was very attractive, for example the SM58 cost US \$7, or Australian \$6.50. It was an easy transaction. Importing the microphones breached the Australian Trade Marks Act and exposed CX to prosecution should we choose to use or pass on the dodgy goods.

“The unit switches are irregular and forceful. Random audio clicks and pops were observed during on and off operation of the unit. The general audio quality and RF range was poor and the microphone feeds back very easily when compared to a real one.**”**

The vendor passed the goods off as Shure products, and the packaging even contained bogus Shure warranty cards. At first glance,

Brief testing confirmed severe problems and confusing variances in performance – typical of counterfeit Shure products. The counterfeit Shure wireless system was operating in the 800 – 820MHz range and not the 524–542 MHz promised on the label. If an unsuspecting customer thought they were operating within the legal post digital dividend band (520 – 694MHz) they would actually be operating illegally and potentially be liable for fines and / or legal action.

In addition the product carried compliance labels unique to Jands in Australia (C-Tick) and European standards. Replication of these



labels breaches multiple international laws.

Further testing by Michael Meissner, the Technical Service Manager at Jands (the authorized Shure distributor for Australia) confirmed the wireless system was transmitting below 10mW while the User Guide accompanying the counterfeit wireless system promised 30mW.

The counterfeit wireless system did not include an audio reference companding circuit., RF diversity circuit, tone key circuit or calibration circuit. In fact, the relevant PCB area was 'absent' of components, according to Jands.

Testing the counterfeit SM57 and SM58 supplied from Shenzhen Longer Electronic, Meissner reported notable differences in finish and performance compared to the genuine units. The SM58 had poor handling noise rejection. The sound quality and performance of the counterfeit microphones was far inferior to genuine Shure microphones.

CX confirmed this at initial assessments within our test studio. >> More



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Fakes: The China Factor

Rogue manufacturing around Shenzhen is a major problem. The district is just adjacent to Hong Kong, and many millions of persons are employed in electronic assembly there. Anne Wong is Associate General Counsel for Shure Asia Limited located in Hong Kong.

"Shure has successfully employed a diverse strategy to combat counterfeiting. We aggressively attack counterfeit manufacturers, particularly manufacturers located in or around Enping City, Guangdong Province – an area that is widely regarded as the counterfeit microphone capital of China. We also attack sellers around the world whenever circumstances allow. As an ancillary strategy, Shure also fights the makers and sellers of counterfeits by offensively and defensively protecting trademarks, domain names, designs, and other intellectual property that facilitates the activities of these criminals."

"Factory level enforcement in China can be very difficult. Factories adopt a systematic production of counterfeits that avoids easy detection, have secure and repeat customers, and in some places have enjoyed a considerable degree of protection from local enforcement authorities", Wong reports.

CX's research reveals that hundreds – if not thousands – of non-descript factories in Baoan District are churning out vast quantities of fake goods. With apparent immunity and suspected clandestine support from the Government, Baoan is a dangerous place. The South China Morning Post reports that Police were struggling to cope with what they call a

"Shenzhen crime wave". Since the turn of the millennium the district has seen a string of high-profile abductions, robberies, and other cases of violent crime.

Where a factory is shut down (after high level complaints by a firm whose goods are clearly being copied) the entire operation has been known to shift overnight.

The tax structure is enforced by multiple levels of communist party administrators, who report performance results back to the party and whose continual existence rely on meeting targets. Closing factories is an anathema.

But Shure does manage to stem the tide.

"An investigation initiated by the Jiangmen City Police led to a raid on a factory as well as three associated warehouses. Goods seized during the enforcement include more than 1200 faked pro audio products" Shure reported recently.

"The syndicate operating under different companies' names including 'New Dynamics Audio Equipment Factory' sold most of their counterfeits online. In December 2010 the Enping City Public Security Bureau arrested four of the suspects"



Fake Shure In Australia

Jands has closed down various eBay sellers known to be offering suspect Shure, reports Managing Director, Robert Young. Jands has now empowered its wide network of resellers to clearly identify themselves as Shure Authorised Dealers, and to report suspect sellers.

This has led to the occasional raid on non-Shure Authorised Dealers, where counterfeit Shure products have sometimes been discovered.

"We have found that people often bring the

fake mics in (to the Jands service dept) soon after purchase, complaining of failure" says Michael Meissner. "Usually there is no sound. At all".

Worryingly CX believes that some parallel importers are mixing or substituting fake Shure microphones with genuine Shure purchased elsewhere in the world and imported for sale in Australia.

Worried about your microphones?



▲ GRAHAM EALES

Selecon Appoint new GM

"When Jeremy Collins first hired me in the 1990's, he asked what I wanted to be doing in five years. I told him, 'I want your job'", says new Philips Selecon general manager Graham Eales.

Originally from South Africa, Eales left Selecon in 2001 after being sent to the UK to establish distribution for the firm. "There was no-where else to go, it was Jeremy's firm". He worked at Zero 88 before being rehired by Selecon several years ago to run the Europe, Middle East and Africa markets and help reorganise Strand, also acquired by Philips. "We have six guys there and a warehouse in Enschede in Holland".

The retirement of long time Selecon CEO Collins was clearly on Eales mind, and some seventeen years after first joining he has his dream job. It means a move back to New Zealand, with his wife and small child.

"I originally moved from South Africa to do Selecon. The appeal of moving back to Auckland is mostly all about Selecon. It's all I want to do"



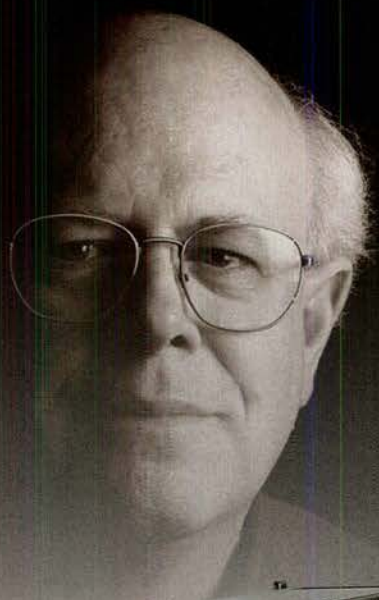
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ENTECH -v- Integrate

They said it wouldn't happen. After the worst misinformation campaign, the biennial ENTECH tradeshow opened in Sydney on a grey Tuesday and shortly after the rains came.

Some visitors were shocked to find one hall, not heavily populated, with just five major exhibitors - Philips Selecon, Show Technology, ULA, Jands and PRG. A further 35 exhibits were scattered across the 5000 metre hall, with Clifton Productions showing off a mobile stage. TAG revived their reputation as Brilliant Baristas, with a continual lineup for free coffee on a reasonably proportioned stand.

"A disappointment from my perspective", says Dave Parker of Pro Beat Entertainment. "Without being in the film or radio industry, our presence would have only added to the foot traffic."

"I really appreciated the dual tradeshow element with SMPTE", said Alex Hasker of Lex Audio Visual in Melbourne. "For my business, both shows are almost equally relevant to me. I struggle to get enough time to visit and I doubt I'll be going to Integrate as well as I'm sure the overall relevance won't be worth the expense and time. I'd hope it eventually all gets combined into one big show."

Dale Kennedy from Mackay says he has never missed an ENTECH. "Most of my customer base (for) larger equipment would always be there. This year not one of my customers went - they all answered the same:

wrong time of year".

"I'm looking forward to Integrate in August. It appears the industry is supporting this show as it better represents where the industry is headed. I had a lot of time to think about the day on the 3.5 hour drive back home", says Tim Kuschel from GUZ BOX design + audio.

"As usual I attended the Exhibition, without SMPTE it would have been a disaster" says

Dave Gibson. "It was interesting to see the number of exhibitors who had not been at ENTECH this year, but who had confirmed Integrate. I would not want to see either event fold as I enjoy attending both (the networking is great), but I believe that ENTECH has made a monumental mistake in changing from its bi-annual February date to its current (let's crush Integrate) date",

ENTECH is still the show for production firms, audio visual rental firms, and for venues, especially performing arts centres.

The SMPTE event was held in two adjoining halls and accessed through a door in the middle. Without it there would have been trouble. 900 SMPTE delegates crossed over into ENTECH on day one, and 700 ENTECH-ers went the other way - each visitor scanned carefully at the door. Both show organisers bent over backwards to co-operate, a

>>>> Continued page 14

SEGMENTED
One trade
show becomes
two. Bit like
some mags,
where more
keep coming



▲ SIMON GARRETT

World Cup Set for Auckland

The Rugby World Cup opens late August, providing a boon for NZ production. Auckland firms Oceania and Spotlight Systems are combining to provide sound and lighting for the Opening Ceremony, with Sydney lighting designer Paul Colison specifying around 200 moving lights.

"We acquired another 64 Mac 2k's from Argentina of all places", said Oceania lighting GM Simon Garrett. "This effectively gives me two systems now, where before I had one". Oceania boast Mac 2k wash, 2k profile and VL 3000 fixtures for frontline work, with a host of High End Systems gear also available.

"Along with the World Cup, we have the Pacific Leaders Forum and Fashion Week. It's a great way to gear up for the summer touring season", Garrett concluded.



Frank Hinton of Grover Notting interviewed by Meg on CX-TV

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situation caused in part by the need to shore up the shows against the Integrate challenge.

SMPTE was definitely as busy as its ever been - CX waited in line to get onto some stands there. ENTECH did OK too, we feel.

At least fifteen ENTECH relevant exhibitors were camped in the broadcast show and showing equipment convergent to both shows. Names like Amber, Production Audio, Audio Product Group, LSC, State Automation, Rosco, Syntec - the list goes on.

Yes there were some big names absent from both shows, and those are big names that will be at Integrate in late August, where there will be a ferocious push by new owners Diversified Exhibitions Australia to secure future support for their annual event.

Who knows what happens next?



1) Clay Paky's Giovanni Zucchanli and Simon Barrett



2) Daniel Munro and Brooke Perram from Lots of Watts



3) Josef Valchar from Robe, Lenka Satankova and Cuono Biviano from ULA



4) Miles Jackson from QSC



5) Jay Heaton, Paul Heaton and David Green from Syncrotech



6) Callan and Tim Bukholtz



7) John McKissock and Rohan Thornton



8) Jason Owen and Mark Mitchell from Cutting Edge

* INTEGRATE opens Monday 31 August at Sydney's Moore Park and runs three days.

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What If I need to drive a high access machine on to my stage lift?

By Andrew Mathieson

This question comes up quite regularly, and most recently was asked in relation to a theatre wanting to use a recently acquired Haulotte Star 10 mast lift on their forestage lift. This machine weighs in at nearly 3 tonnes, and the question was whether the stage lift floor is rated to take the machine.

The lift has rating signs that say "Floor Loading 7.5kPa UDL", "Point Load 4.5kN", & "WLL 6,000kg". Official sounding, by the book and correct as these signs are, they still left the operator asking "so does this mean I can drive a 3 tonne machine onto the lift or not?"

In this article, we'll try to de-mystify the interpretation of those floor load ratings.

The first thing to consider is that a motorised stage lift is two things – it is a machine for raising and lowering loads, and when it is parked, it is a floor that forms part of a building. This means that it must serve two masters, and be rated both as a machine that complies with the Standards and Regulations covering plant and machinery, and it must also be rated as any floor in a building is rated, to structural engineering Standards and to the Building Code of Australia (BCA).

When the stage lift is raising and lowering loads, then it must be rated for the maximum load that it can safely raise and lower. The traditional term for this

was SWL – the Safe Working Load.

The term SWL is now not officially sanctioned (apparently this term was deemed to be risky, as it implied that the only thing needed to be "safe" was to not exceed the Safe Working Load) and the preferred term now is either Working Load Limit (WLL) or Rated Capacity.

When the stage lift is parked, it becomes part of the floor that it is adjacent to and must be rated for exactly the same loads as the floor it is now part of. These ratings are the Uniform Distributed Load (UDL) and the Point Load.

The UDL ("area loading") describes the maximum average load per square metre that can be placed over the entire surface of the floor. This loading is used to design the sub floor structure – the columns, beams and bearers that hold the floor up. It is permissible to exceed the average loading per square metre when applying large localised loads (point loads) so long as you leave sufficient unloaded area around this localised loading to bring the average back down to the rated UDL.

The Point Load is used to design the floor itself – the joists and floor sheeting. If you exceed this rating, you run the risk of bending or breaking joists and cracking the floor sheeting – not a good look if you're 10m up in the air in a high reach machine that just went through the floor.

The Building Code of Australia states that floors must be designed to safely

withstand the loading conditions set out in AS1170.1

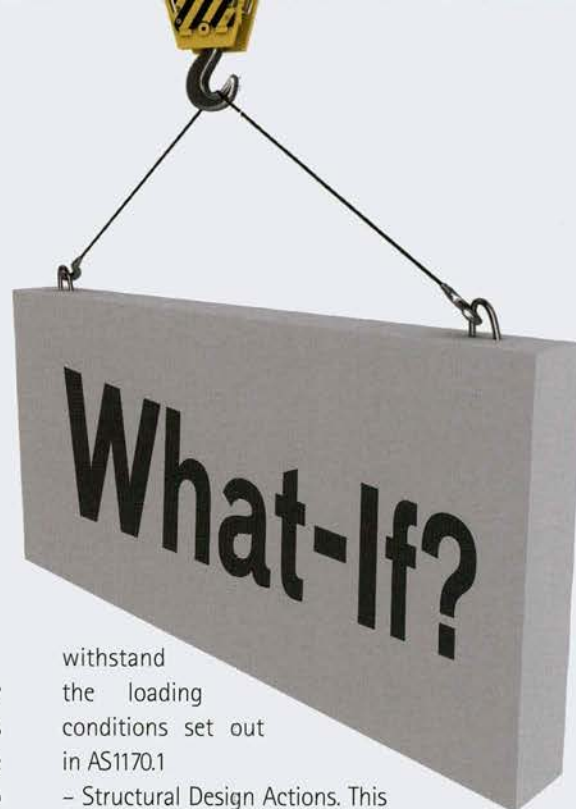
– Structural Design Actions. This standard defines the design loads for a stage floor (Table 3.1, Row C5) as a Uniformly Distributed Load of 7.5kPa (765kg/m²), and a Point Load of 4.5kN (459kg) applied over an area of 0.01m² (0.1m x 0.1m).

So, can we drive the Star 10 lift on to our stage floor?

The lifter will cover an area 1m x 1.2m and weighs 3,000kg, so at first glance you would think this exceeds the UDL rating. If, however, you place the lift in the centre of an imaginary 4m² area, and add no more load in this 4m², then the average loading over that 4m² is now less than 7.5kPa.

The lifter has 4 wheels, each with a "footprint" of about 0.15m x 0.15m (0.0225m²) and imposing a load of approximately 750kg. This equates to a point load of 3.3kN per 0.01m² – less than 4.5kN. If the footprint of each wheel was smaller, then you could still drive it on to the lift floor, but you would need to place spreaders under each wheel to make the footprint of the load larger.

And finally, the lifter weighs 3 tonnes, which is less than the WLL of 6 tonnes, so you can even raise and lower the lifter on the stage lift (with the basket safely retracted of course).



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ON AIR*Church
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News*

LAST ISSUE we detailed an inexpensive Church TV setup. This month new contributor Brandon Rhoda details the pitfalls of IMAG

Lhen we make the investment into going IMAG we are essentially asking our attendees to watch our screens for one to one and a half hours every week. Once IMAG is offered about 80% of people are watching IMAG rather than the stage and is thus the main visual communication method from the platform. Because of this I believe that there are 3 things that should not be cheaped out on when investing in an IMAG system.

Projectors

We are a media driven society, HD TV's are common appliances and people are used to quality when they are watching TV. IMAG is essentially TV at church and people expect the same quality at church

as they do at home. Having quality projectors that are sized correctly, bright enough, and display quality images with little to no latency is what people are used to, and they notice if they don't meet those standards. Ask yourself, have you ever turned the channel because a program didn't look good on your TV? I know I have and so have your attendees, the difference is they can't change the channel; they are stuck watching what is going across those projectors. We want people to tune in and lock on to what is being communicated, let's minimize the distractions.

At one of our campuses our projectors went south. We started to get green spots and halos. The projectors stopped holding colours and had to be re-calibrated every time they were fired up. Bottom line, they look horrible. Now this campus was a video venue, half of the service was brought to



the congregation on the projectors only. We tried to get them fixed but after cycling the projectors through 3 times in the shop we finally had no choice but to replace them. I am ashamed that we let them go that long and the amount of people that noticed was extremely high.

Once we finally replaced them the amount of feedback was overwhelming. My point being we should have done it sooner, people notice and it ultimately makes for a better experience for those attending.

Cameras

Your cameras can be one of your biggest expenses when purchasing IMAG gear, especially if you get multiple camera chains. But it is important to get the right camera for the job, including proper tripod support. Your camera is transmitting all the visual information from stage to your projectors. Video can only look as good as the source it is coming from. Your starting point is so important in holding quality. As the old saying goes, "Crap goes in, crap goes out." Now those of you that have been following me for a while know that I don't believe that HD is always necessary. Quality means quality, not resolution. I would also push for studio cameras. More features and control for studio applications can in itself make a huge difference.

When we first opened our main facility we had some Panasonic brick cameras that

were using a system that transmitted all the camera control and information down a single BNC cable. Sounds pretty cool right? Yeah, but... when one of the cameras went down we got a rental camera in.

Now the specs on the cameras were pretty much the same, only difference was brand and the fact that the rental used CCU (camera control unit) cable rather than the multiplexing system. The quality difference that was noticed was almost night and day! So many people noticed that we ended up swapping out the cameras after the campus was open for just over a year.

Lighting

The human eye is very forgiving. I don't know how many times something looks to be lit well and you point a camera at it and you see all the flaws. I have seen great gear used end to end and still a poor looking product on the screens.

Lighting is everything! Don't forget to budget in lights and have a professional come out to make sure that everything is even. For churches that have windows, you may need to invest in blinds in order to control the sunlight coming in from time to time.

A friend of mine is the production manager of a church close by. Every once in a while when I have a weekend off I will stop by to check in. He spent a week giving his lighting system a complete overhaul! He re-positioned every light he had. Some new lights were put in and some of the older ones were retired. He couldn't believe how much better the cameras and the end product

looked after that long week. It was something they wish they had done a long time ago because of how much better it made their end product.

In my opinion those are the 3 things that no system should cheap out on. Spend the money up front. Now some people are thinking of other pieces of gear like production switchers, decks, Character generators - those are all very important pieces of gear. But the key with those pieces of gear is to buy smart.

You can buy good products for cheap, or work around some of the flaws for a while. You can also get your self in trouble by going cheap with these pieces of gear, but if you buy smart you can get some great products at great prices. But in my experience there's no way of working around cheap projectors, cameras or lighting rigs.

No matter how hard you try they tend to just look bad.

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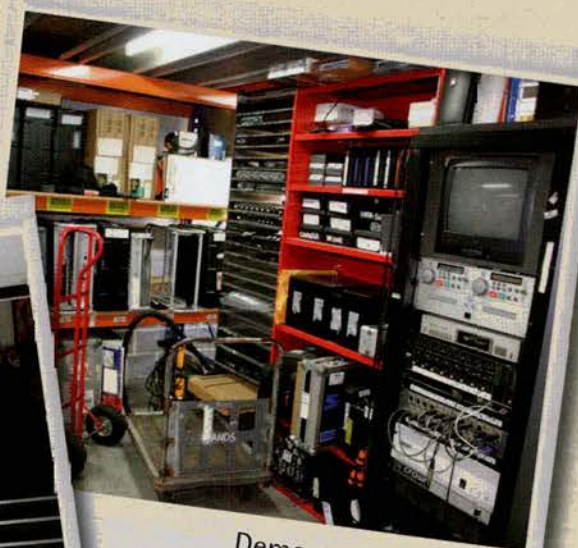
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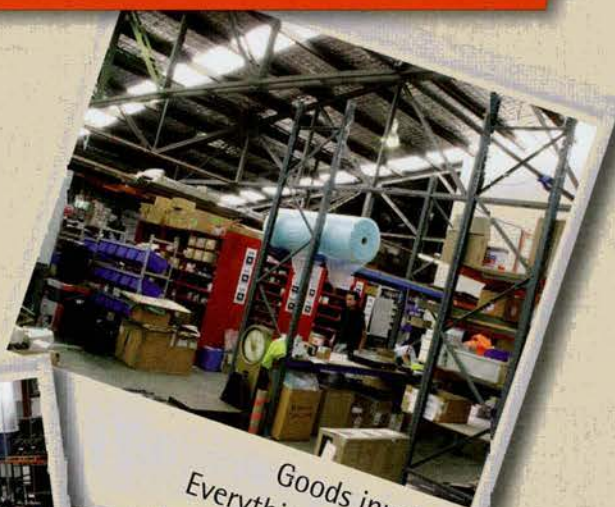


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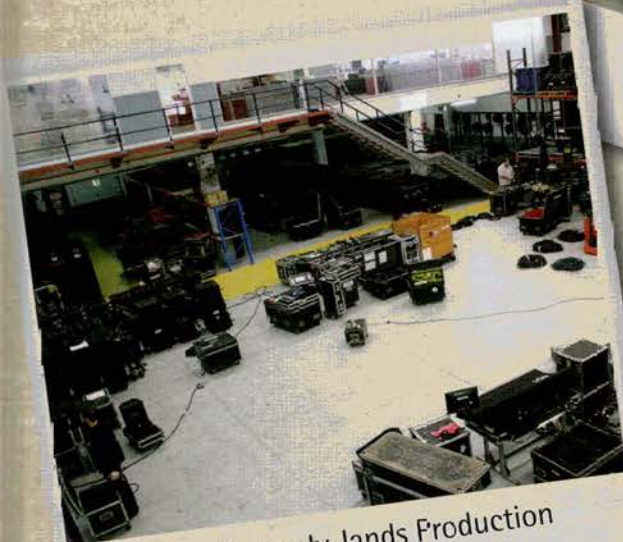
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Doo-wop 'til you drop The Delltones'

53 year road trip continues



By Brian Coleman

"I REMEMBER the first PA system that we carried was a Bose system, and it went into a Bongo van."

Ian 'Peewee' Wilson.

α journeyed to the NSW mid-north Coast town of Port Macquarie to catch up with doyens of doo-wop The Delltones for their sell-out Wintersun festival performance. At the Glasshouse theatre we found the production crew scurrying to set up stage at the conclusion of the festival's annual Elvis impersonator contest.

The band's iconic leader and bass vocalist Ian 'Peewee' Wilson walked us through some of the production changes since The Delltones embarked on their 53-year road trip.

"We're talking about 1959, and basically these were times when, for the most part,

we'd do our live performances around one microphone," says Peewee.

Peewee points out that it's The Delltones huddled around a single microphone at the fabled Sydney Stadium, which is flashed across our television screens at the start of the ABC's *Rage* music motif montage.

"At the Sydney Stadium we had column speakers, and I believe they were Philips; the same speaker columns that were used for the boxing matches. The four of us would sort of crowd around one microphone and we'd put the top voice, the tenor voice, the farthest away from the microphone, and the lead vocalist the closest. So the more powerful and higher voices were farther away from the microphone, and the lead voice and the bass voice would be a little closer so as to get a balance. But we didn't have a monitor, so we didn't

DELLTONES have probably toured Australia more times than any other band – and carried all kinds of production

really have a good way of judging it. I don't remember any foldback in the 60s at all," says Peewee.

Cut to the Glasshouse foyer where torrential rain is visible through the \$50 million venue's crystalline walls. Inside the venue a torrent of a different kind erupts as the 600-strong audience stamps, slow-claps and caterwauls for an encore from their lionised immortals. It is this phenomenon of preeminence that has seen The Delltones deliver their chemically sharpened vocals and slick musicianship to packed audiences since the late 50s.

Carla Wilson, The Delltones manager of some 30 years, and wife of Peewee, says they still talk about the untimely death of Noel Weiderberg in a car accident in 1962. They sometimes ponder the heart-rending loss of the group's lead singer and

songwriter sequentially steered the band more towards performance art than original recording ascendancy.

"Had Noel not died maybe The Delltones would have taken a different direction, you don't know, but it never really settled after that, to be honest," says Carla.

However, The Delltones signed on new lead singer Col Loughnan and powered on for another decade as a vocal quartet. But the enormous overheads of carrying backing

musicians, production and production crew started to outweigh the financial gains.

"At that time there were the four Delltones plus the backing band. There were so many of us on the road that it was economically impossible to sustain it," recalls Peewee.

And so The Delltones exited the performance and touring scene for 5 years, and Peewee and Carla became farmers. But a number of persuasive factors including a

suggestion from band mentor and rock 'n' roll legend Johnny O'Keefe resulted in Pee-wee putting the band back on the road in 1978. Carla still jokes that they needed the money to buy a new tractor. Sadly, 1978 was also the year that the great J.O.K. died.

"But it wasn't until 1982 or 1983 that I realised that it wasn't going to work. So it was at this time that we incorporated the instruments into the band. I remember the first PA system that we carried was a Bose system, and it went into a Bongo van. And our total crew of one was just a sound man," says Pee-wee.

"During that '84 period the band was just going around the clubs with this little Bose system, and we had an opportunity to do Kinselas, a venue recently converted from a funeral parlour; and it was a double

"THERE'S NOT MUCH goes wrong with a par can that I can't fix with a screwdriver or chuck a new lamp in."

Steve Wright, Lighting Director.

act with Little Patti. A couple of journalists picked up on the thing and the publicity started to flow.

"So things started to change technologically very rapidly: we went from a Bose system to a three-way, to a double four-way, and towards the end of the '80s we were into the Meyer System. We were getting very serious, and the money that was coming in was beyond our expectations. So, with the growth of our popularity came the

growth of our technical support--our sound reinforcement and lights," says Pee-wee.

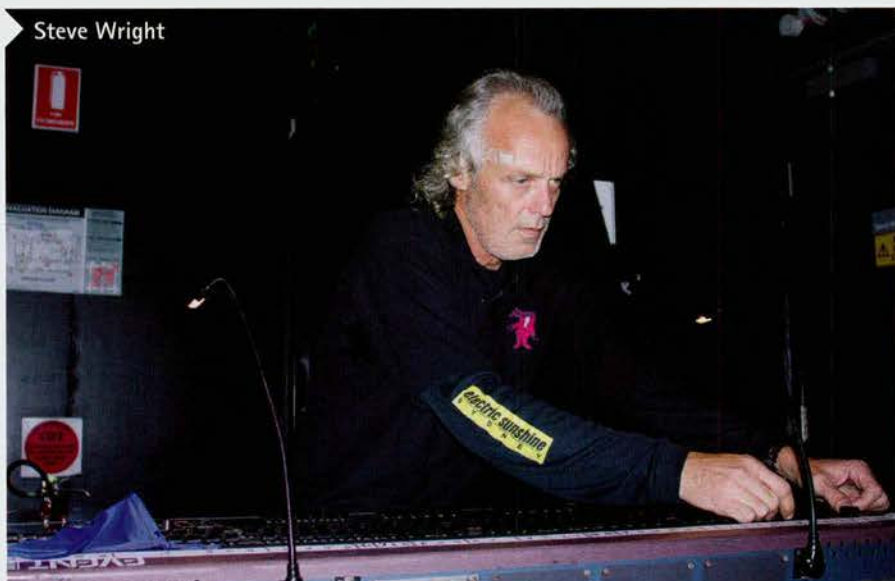
Today's audio

For the past 15 years The Delltones enduring modulations have been coalesced by veteran audio engineer Allan Griffin.

First glance at the amplifier rack transports the beholder back to a bygone era.

Two classic Yamaha P2200 amps, circa

Steve Wright



Woody and Carla

Carla and Tony



Allan Griffin



1976, drive the live monitor sends to two original JBL LP bi-amped foldback wedges. There's a couple of third octave analogue graphics in the rack and 3 x Electro-Voice P3000s, 2 x P2000s, and 1 x P1200 power the FOH EV DeltaMax speakers.

A 40ch Allen and Heath GL4 steers both the FOH and the foldback sends.

And the outboards? "They're all fossils--period pieces you might call them," says Griffin.

The main reverb on the band is a US made Ursa Major Star-gate (early 80s). "It's pretty sloppy, which makes it really good; it's not clinical like I find a lot of modern machines--which don't suit the band--it's extremely broad," says Griffin.

"I have an old 900 series DBX rack--all soft-knee compressors--and that does the vocals. And there's just a little bit of compression on the bass, just simply to keep the bottom in the picture when they're doing the acoustic set. I'm not clamping at all. It's a peak limiter more than anything. I want them to be able to sing strongly, but we need to be able to threshold some of the high lines so they don't leap ahead and become overpowering. That's simply because of the actual vocal pressure the boys have got to use to hit some of the high notes," says Griffin.

For volume control in sensitive areas Griffin says he'd rather back off the volume than compress the mix.

"I've worked to a meter most of the time that I've been with this band. If there are questions from the house I can point to the meter on the desk and say, 'we're running here'...they can visually see where we're at, and I can either turn it up or down.

"Guitar and bass are the live wedges and all other people participating are on ear monitors. Stage volume has been made so much easier with the demise of the stage monitors -- there used to be eight," says Griffin.

Lighting

September 2006 saw ex John English and Wickety Wack lighting engineer Steve Wright sign on with The Delltones.

"There's four colours that form the main part of the show. These wash the front of the stage and the drum kit. And those four particular colours have an effect on the band's pink suits. The blue is a particular blue that when you shine it on the suits they turn purple. And only that blue (Lee 141), I've tried others," says Wright.

Wright says that the lights are mostly Par 64 cans with a few profiles to highlight the performers, and a follow spot.

"There's not much goes wrong with a par can that I can't fix with a screwdriver or chuck a new lamp in," says Wright.

"We put that gear in the truck every night and we take it to the next show, and we just expect it to work. Some of it's older than I am," quips Wright.

"The lighting desk is a Jands Event Plus 48. It's had the guts replaced. It was a sad old desk that had seen a few miles. But now it's got a new brain in it and a new CPU, a disk drive and a few other bits and pieces. We've probably spent about \$2.5K on it," says Wright.

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Wright says he's only used moving lights with The Delltones on one occasion at The Palms, Crown Casino. "They're not that kind of band," he says.

"It's a different show without a smoke machine. I'm a happy man because Bird (Peewee) is just as adamant about having the smoke as I am. And the unit that we use isn't a heating element like the old smoke machines. It's an oil cracker. It just pumps compressed air through the oil and cracks the molecules. In the old days there was this slippery oily film over everything, so you can imagine that getting on your lungs. But with this one I haven't heard Al (Griffin) make a single comment about any of his gear having residue on it at all," says Wright.

Tony Fraser is The Delltones stage manager and follow spot operator. Wright points out that his understanding with Tony is one that doesn't require wireless communications.

"Usually when you see a follow spot there's some guy calling it, but our shows are very scripted. I don't have to talk to Tony at all; there's no comms between us," says Wright.

Management

Carla Wilson was born Carla Bagattini in La Spezia, Italy. Raised in South Africa from 4 years of age, she later pursued an acting career under her married name Carla Prowse before moving to London with her daughter after the demise of her marriage. In London she says she met and fell in love with The Delltones charismatic luminary Peewee Wilson while the band was on tour in 1969.

In the early 80s amidst looming suspicions that brokers were bringing international acts into Australia at top dollar prices and sweetening the pot with The Delltones at bargain basement prices, it was decided that Carla should take over the reigns of management.

"We were getting disillusioned with the management: that we had because they made all sorts of promises: that the money would go up, that this and that would happen, but nothing was happening. I bravely said, 'I can do what you're doing,' to the managers. But I didn't know what I was getting myself into," says Carla.

Carla's management of The Delltones is truly an industry success story. But Carla sees the humour in being both manager and Peewee's wife. "Who's going to listen to a wife/manager? That's the downside of being a wife and a manager," says Carla.

Back in pink

With admirable gusto The Delltones have decided not to replace lead singer Danny Mayers, who has announced his imminent departure from the group to focus on his eponymous country music band. Instead, they are going to draw on the strength that the band's musicians are all vocal virtuosos and not merely backing singers.

"We are doing a full circle. This is bringing us back to a quartet again. So the sound is going to get back to our origins of the four-part harmony," says Peewee.

The Delltones musicianship is a strength in itself. Bass guitarist vocalist Owen Booth has played with Chuck Berry and Bo Diddley; Drummer vocalist Merv Dick gets his own drum solo every show complete with pyrotechnics; and former Sydney Conservatorium music graduate, guitarist and vocalist Woody Finlayson is a serious jazz guitar devotee and vocal aficionado. The Delltones also often employ the talents of Peter Forrell on keyboards and saxophone.

Woody explains the complexity involved

"WITH THE GROWTH of our popularity came the growth of our technical support."

Ian 'Peewee' Wilson.

in building the new line-up.

"When we had Danny out front singing lead, Peewee could do whatever he liked in the bass part, and the three voices behind could form a natural triad, so every chord

was full. Now you cut one of those pieces out (Danny) and you've got to totally rearrange every song. So that's the biggest challenge," says Woody.

But then there's also Peewee's cutting wit and self-effacing humour that brings an added dimension to every Delltones' show -- like announcing a Delltones' song that made it to number 43 on the Top 40.

"Ian has that Australian droll, dull humour and he's got a real talent for the way things run. Sometimes I say, 'You could be a comedian because you've got such timing; everything's there, and you're funny'", says Carla.

The Delltones aren't forgetting that their roots are steeped in the doo-wop sounds of 'a cappella' augmented by vocally mimicked instruments: bom-bom-bom for the bass, shang-alangs for the guitars, and doo-wops for the horn section. Add to that the standout musicianship of the band's players, and like the seemingly immortal liquid metal shape-shifting antagonist in Terminator 2, The Delltones' machine rolls on.



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NEUTRIK

Circus Oz

embark on
Steam Powered tour

Circus Oz 2011

Performer: Mason West air and Circus Oz Ensemble

Photo Credit: Rob Blackburn

By Julius Grafton

Steam powered seems like a good idea in the middle of a park in Melbourne's winter. Sure enough the big top is warm inside, and the walk down to Birrarung Marr, the parkland near Federation Square has set the mood with weird inflatable creatures and some strangeness with fire. Circus Oz is a sacred institution from Melbourne, and they start their year here each winter with a show that has loosely evolved since April. They don't write a new show, they build it in rehearsals. Then it tours, and to all the hard places, where the entourage of around 20 do as few as one show in a regional town's performing arts venue. This

can, and does, include a basketball hall.

Coz is a full time, seriously credentialed, and internationally famous troupe of quirky, gifted and ultimately entertaining modern circus people, minus any performing animals.

Channeling

Enter the zone and you immediately think of patchouli oil and dreadlocks, with the hint of other more pungent fragrances perhaps around the corner. T.F. Much More Ballroom and the Aquarius Festival of the 1970's led to Circus Oz which came out of the Last Laugh Theatre in Collingwood. The retro hippy feel hasn't changed, and it took me back to places I should have forgotten.

With the big top almost full on a Thursday night, the show starts and the solid musical foundation is laid down by just

four, sometimes five musicians. The opening dialogue reveals some audio limitations to a trained ear, but the audience are locked in.

"We spent a month in Madrid last year", stage manager Anna Pidgeon told me. "That was intense, when we went out the foyer after the show, they would clench their hands around yours, hug you, and they were really involved".

The A to Z of where this Circus has toured reads like a combination bucket list of exotica across the four corners of the earth, and a long list of places to avoid, like the Gold Coast.

So what goes on the road?

Touring

The set in the big top has a gothic, copper coloured construction with pipes and

wheels that appears to weigh one hundred tones. Like all good theatre sets, it is a cunning concoction of plastic and wood. It was not yet decided how much of it would tour.

"We take a semi on the road. The ladder and centre truss come with us, some moving lights, the sound desk and some sets", explains Anna. Circus Oz has a truck driver. (The tour this year is dedicated to the previous guy who drove for 15 years and passed away last year).

Fitting into regional venues requires some versatility. Luckily almost all venues have been visited before, so the advance work is done by phone and email. "Essentially, the question is, what has changed since last year?"

"These are forward facing venues. Some we need to do an advance rig", says Anna. Rigging is a very critical part of a theatre show, and the company has for a long time drawn on expertise from Tiny Good at Showtech Australia in Melbourne. Two

riggers work full time on the road.

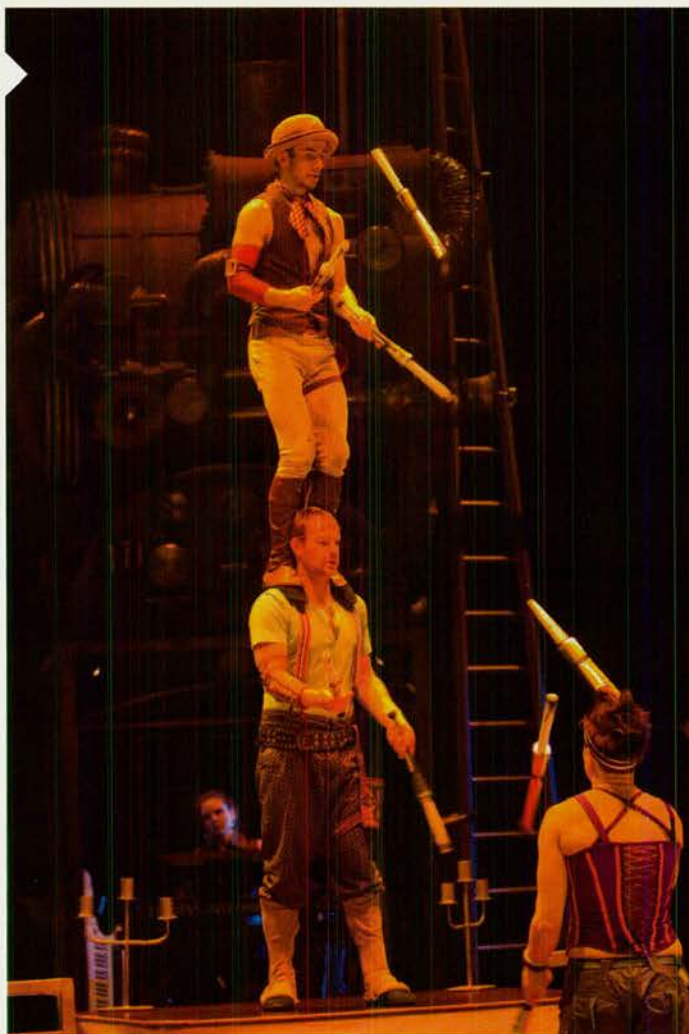
Bump in and rigging is on day one, there is a safety run through and a tech rehearsal on day two. Day three can include a school show, then the first night performance. Bump out follows the final show.

Last year Anna was the touring production manager, the move to stage management she describes as a 'move sideways'. She says virtually all show segments from the previous year could be staged in every regional show, and expects the same this year.

Tech

I loved the lighting! Designer Tristan Bourke has nailed it, with a warm but grainy look that bows to the timeless traditions Circus Oz has adopted, the fusion between theatre, trapeze, circus and vaudeville. Three truss follow spots do the business. The marquee lighting is a bunch

Circus Oz 2011
Performer: Luke Taylor (bottom) & Paul O'Keeffe (top)
Photo Credit: Rob Blackburn



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of circle crusses with eight Pars on each. The foyer tent and outsides make for a busy inventory.

A simple sound rig of three point source speakers are centre clustered above the upstage band. This is where the company is let down, in my view, badly.

Take the opening dialogue. It was intelligible but it was hollow and carved up, carefully equalized for gain before feedback which was lurking underneath.

Likewise the band were mixed very well, the tech execution of audio was highly professional and no doubt extremely frustrating for sound engineer Joe Ferguson who had little to work with in terms of loudspeakers.

Where the kick drum or bass sequences needed to do what almost any car stereo, home theatre, every cinema and any venue with a band will do, there was no action. No



Circus Oz 2011
Stage Manager Anna Pidgeon
Photo Credit: Rob Blackburn

Future

I haven't detailed the tortured path of funding and sponsorship that goes with an innovative arts company like this. But they are excited about their new HQ in Collingwood which will open in 2013. It will give them the right flying spaces and rehearsal facilities, and smooth the creative processes.

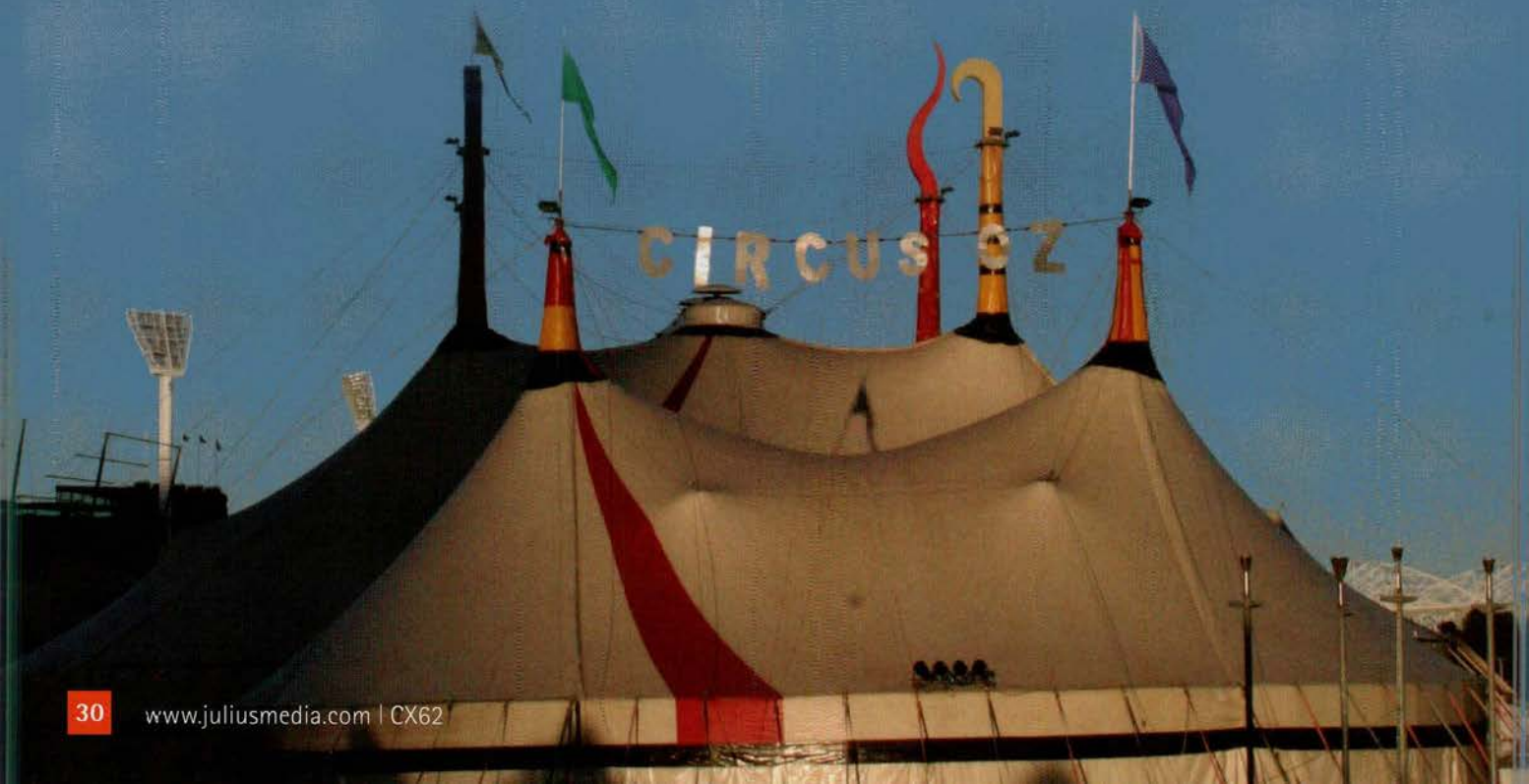
Recently Circus Oz acquired a Spiegelteert, one of a dozen old style structures in the world today. They used it at the Midsumma Festival across Summer, staging a Blue production, which can best be described as 'adult only'.

One thing for sure - with or without a contemporary live audio system, this company has to be a unique and classic pillar of the Australian arts scene.

high fidelity, no subsonic, no air movement, no crisp highs (CK, always hard on a ten) because there was not enough equipment.

Audiences are increasingly conditioned to good

sound these days, thank goodness. The show itself is neither rock, nor musical, rather it has a unique form that Circus Oz have perfected over more than thirty years. But it badly deserves better audio, and this would be obvious in the regional venues where the tour uses House Production, with some local hire to supplement where required.



Hype your media
with full HD digital signage



SPINETIX



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- > No configuration
- > Ultra compact & durable
- > Dynamic content
- > Interactive kiosks & video walls
- > No maintenance
- > Software included
- > 7w power consumption
- > 3G modem connectivity
- > Life time warranty

Overview

The HMP200™ Hyper Media Player is a Full HD, high-end digital signage device. Zero config technology and compact size allow for quick installation. Set-and-leave: Non-PC based, no moving parts and no maintenance.

With the HMP200, SpinetiX® offers a simplified way to publish information, audio and dynamic content to your screen. This is done through the SpinetiX Fusion Software which runs inside the HMP200.

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better for your bottom-line. Energy cost savings mean the HMP200 pays for itself in just three years when compared to PCs.

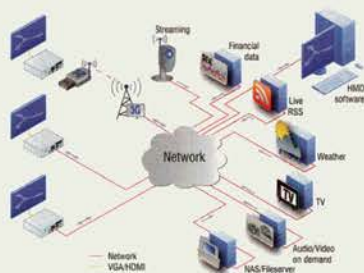
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SpinetiX HMP devices can be used to make video walls, of any size or shape. The same is true for interactive kiosks and touch screens. Everything is included. You won't believe how simple it is to create and manage your screens

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To download detailed product specifications for the the HMP200 go to: www.madisontech.com.au/spinetixhmp200





Coemar LEDko

Digital Lighting Revolution:

\$ The savings

WITH THE MARCH of LED into every possible theatre light, venues face serious choices. But the math is compelling. Julius consulted his abacus.....

Think about the Coemar LedKo and the Selecon PL3. With Selecon using LEDs to emulate a 1,200 watt conventional Fresnel, and drawing just 400 watts to do it, the immediate front of mind thinking is 'wow, we are now cutting our power bill by TWO THIRDS!

Electricity is set to rise in cost far more than inflation, in the state of NSW a 15% increase is mooted this next year alone. That's before a carbon tax or ETS kicks in. CX researched power costs and found cost per kilowatt: hour ranged as high as 27c. We settled on 21 cents for this comparison.

But the cost savings that LED digital theatre lights provide go way beyond the raw input of power. First we will expense the raw input of power:

1,200 watt Fresnel, tungsten halogen

Power per hour: 1.2kw
Cost to run per hour: \$0.25

PL3 LED Luminaire

Power per hour: 0.4 kw
Cost to run per hour \$0.08

So far we are not excited. But if we run 8 professional performances a week, with 2 hours use per show, then we are up to 16 hours per week. Which looks more like this:

1,200 watt Fresnel, tungsten halogen

16 hours cost to run: \$10.48

PL3 LED Luminaire

16 hours cost to run: \$3.73

Before you bang off an email or call us, the above assumes a light is running the whole production time. In the case of the Fresnel, there may be two or three washes of colour, and only one is ever used at one time. But there must be at least one Fresnel out of the two or three operating. When a PL3 is put into the rig, its integral digital colour system means instead of needing three different sets of Fresnels for three washes, you have one set of PL3's or similar. In any case, they will run every minute of the show, and during the audience walk in.

Now take the electrical savings out to five years. This is the estimated service life of the current generation of LED engines. Presumably after five years, you'll replace the entire device with something even more efficient.

1,200 watt Fresnel, tungsten halogen

Kilowatts per year: 998.40
Cost per year: \$209.66
Cost for 5 years: \$1048.32

PL3 LED Luminaire

Kilowatts per year: 332.80
Cost per year: \$69.89
Cost for 5 years: \$349.44

The saving using the LED system is \$698.88.

But there is more to consider. The LED system runs virtually cold, whereas the 1,200w Fresnel is as hot as an oven. Using an air-conditioning calculator for a space equal to a 500 seat theatre with 9m high ceiling, we came up with this sad set of numbers:

Theatre with 100 x 1,200k lights

Power to cool: 162 kilowatts/hr
Cost to run: \$34.02 /hr, \$816.48 /wk

Theatre with cold burning LED lights

Power to cool: 112 kilowatts/hr
Cost to run: \$23.52 /hr, \$564.48 /wk

*Based on running air 24 hours /wk

The air conditioning cost calculation above is offset against 100 conventional 1.2kw luminaires, so a more nuanced comparison would take into account that only half these would be turned on, and only for 16 of the 24 running hours. To be even more fair, we should halve the savings, like this:

Cost per year, top example: \$42,456

Total saving with LEDs \$13,104 /yr
Cost per 1.2k light to cool: \$65.52 p/yr

Cost per year, LEDs: \$29,352

Adjusted total saving \$6552 /yr
Cost per LED to cool: \$0

Now we can see a five year saving (using LED lights only) of \$32,760 for air conditioning alone, where the air packs fight down the heat from a 100 luminaire conventional lighting system!

The table so far:

Conventional 1,200w lights

Power to run \$1,048.32 (5 yrs)
Power to cool \$ 327.60 (5 yrs)
Cost per light: \$1,375.00 (5 yrs)

LED lights

Power to run \$349.42 (5 yrs)
Power to cool: \$0 (5 yrs)
Cost per light: \$349.42 (5 yrs)

Further cost savings

With power foremost on our minds, and price per kilowatt only likely to rise with carbon costing on the horizon, what other savings exist in the brave new era of digital lighting?

Consider the replacement lamp scenario with the 1.2kw Fresnel (or profile spot). At 750 hours and a minimum cost of \$45 (best buy), there is an annual operating cost of \$53.49 which extends out to \$267.43 over the five year estimated life of the LED system.

Then there is colour medium, or 'gel'. Every week or every new show, the theatre luminaire needs another square of gel cut, put into a frame, and inserted into the front of the fixture, up there in the rig. We estimate a per fixture cost of \$48 /yr or \$240 for five years. The LED fixture has a digital colour rendition system, which provides immediate colour of almost any hue, without going anywhere near the device.

At \$507 for lamps and gels over five years, there isn't a lot in these numbers. However when we think out cost of labor, and safety, the picture changes. To replace a lamp you have to go to the fixture, remove the power cable to avoid putting a new lamp into a live device, and restore the focus. You probably need to pull apart

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Philips Selecon PL3 ▶

One thing we can't cost properly is the massive reduction in risk by not changing lamps & gels!



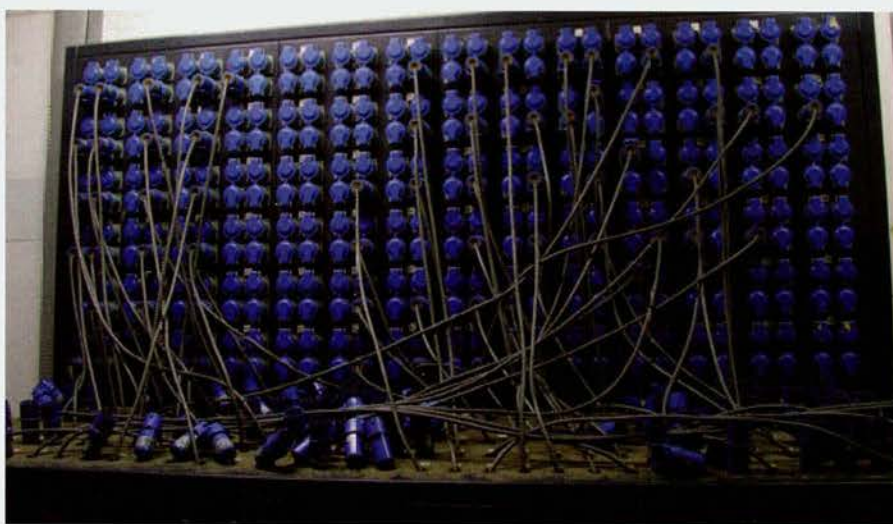
▲ No dimmer racks required for LED fixtures!

the light for a yearly clean, since the reflector and lenses accumulate dust which dramatically dims the device.

The LED system would also need a clean, but it could be scheduled without need of lamp replacement. We think hot conventional lights get dirtier than cold ones.

Lamp replacement, height access and even colour gel replacement is hard to put into cost, so lets use our annual public liability and workers compensation insurance premiums as a guide.

If you can say to your insurer that you will almost never send a tech to work at heights, your premiums should reduce at least a third. With premiums for a 500 seat professional theatre routinely running at around 4% of labour costs, the savings could look like this:



▲ No Patchbay required either!

100 long cable runs

\$200 each, \$20,000 all up
60 channels of dimmers, \$15,000

30 daisy chained cable sets

\$100 each, \$3,000 all up
No cost for LED, no dimmers required

DIFFERENCE:

- Conventional lights \$35,000;
- LED's \$3,000;

SAVE \$27,000

The best part of this is that using all these arguments, along with the improvement in working efficiencies of just 'dialing up' a new colour, any venue especially school or government funded, should be able to make a case to re-equip.

Best of all, once you do start on this path, you'll get new kit every five years!

Web clouds up as iTunes infects

Did you ever work somewhere with multiple licenses for Microsoft Office? Just as soon as cloud computing emerged, everyone we know raced into web browser based applications. Right now at CX we use Dropbox for storing and sharing magazine stories and layouts. Flatplan for layout planning. Issuu for CX-E, the online digital version of the print mag.

We have so many cloud-based apps that we have lost track. Back in 2008 Richard Stallman, founder of the Free Software Foundation and creator of the computer operating system GNU, said things that are starting to resonate here at CX HQ in uptown Chatswood, New South Wales. He said that cloud computing was simply a trap aimed at forcing more people to buy into locked, proprietary systems that would cost them more and more over time. "It's stupidity. It's worse than stupidity: it's a marketing hype campaign," he told The Guardian.

This came home to me when one of the boys inadvertently racked up \$290 in online purchases on my iTunes account for game credits. I hold myself responsible, since an adult shouldn't give a 14-year-old access to credit. In my defense I had thought a few music purchases that he could refund seemed reasonable.

How do I ever break free from iTunes? With 14GB of music in there, I suspect I am a hostage for the foreseeable. While it costs nothing to use now, maybe it will one day.

What if Dropbox ratchet up the monthly fee? How about Xero, our accounting package that is also cloud at under \$50 a month? It sure beats having MYOB installed on a server. Now I can reconcile our accounts anytime, anywhere. As if I'd want to do that!

We use Campaign Monitor for emails. Vzzar and Live Stream for video serving. Weebly, Moodle, Wikispaces and MobileMe. YouTube, Facebook, LinkedIn and Twitter are all free to use just like Google.

Sure the Free Software Foundation are a bunch of communist hippy geeks, who sit so far to the left that they can see utopia through clouds of bong smoke. But I think I'd rather walk in their direction than sit with the smart money guys who are conspiring to rope-a-dope with irresistible, unescapable cloud apps.

I guess I'm a dope.

- Julius



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SMPTE 2011

lights up the THIRD dimension

By Brian Coleman

Five years have flashed by since the broadcast industry entered the barely pubescent world of ENTECH with a display of convergent technologies at ENTECH 2006. This year, SMPTE (Society of Motion Picture and Television Engineers) and ENTECH ran side-by-side in separate exhibition halls at Sydney's Darling Harbour.

An amalgam of letters and numbers like DVB-T2, VOD, HD and LED scrambled for ascendancy in the SMPTE exhibition halls where 3DTV clearly emerged as this year's alphanumeric champion. And given its fledgling 10-year infancy it's quite numbing

EXHIBITORS AT THIS YEAR'S SMPTE flaunted a wealth of product spearheaded by the push towards 3D, validating that the Australian digital television industry is now inexorably mortared in the neoteric era of 3DTV. Brian Coleman explains.....

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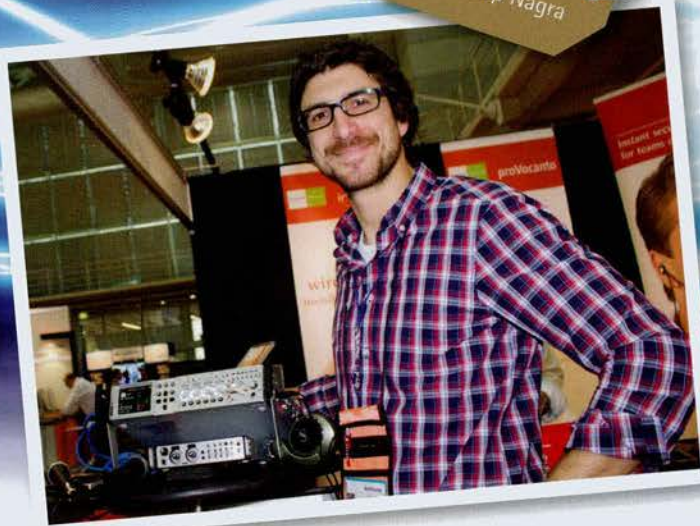


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Adrian Curtis,
Soundcraft Sales
Director UK



Anthony Sabatini
Broadcast
Workshop Nagra

that the Australian DTT (digital terrestrial television) industry has now leapfrogged into the world of stereoscopic imaging.

3D Acquisition

3D cameras, monitors and edit suites were on show for all to behold. And to add to the excitement, the show was abuzz with the news that we are now plunging headlong into the advent of 3DTV monitors without the need for polarised 3D glasses.

Panasonic led with their new AG-3DP1, an EFP-style (electronic field production) shoulder-mount 3D camera, which can record up to 80 minutes on dual 64Gb P2 cards in AVC-Intra 1080/24pN.

"It's predominantly used for sports and action sports, although we have had them used for drama. But the biggest take-

up has been the action sports people like Storm Surfers and Red Bull; that seems to be the best fit because they're lightweight and portable and give you excellent picture quality," said Mathew Alexander from Panasonic Australia.

Sony's Senior Product Manager of Content Creation Products Nick Buchner was on hand to show off Sony's first professional shoulder-mount 3D camcorder the PMW-TD300 on the XDCAM EX platform, which uses Sony's SxS flash memory cards.

"This is really designed for two key purposes; one is for documentary makers who want to be able to shoot 3D easily in the field without the limitations of some of the other single piece 3D camcorders. The other thrust is that it can be used as a system camera. Because it has HD SDI outputs it can be used, for example, as a sideline cam-

era in a live broadcast environment where a rig might be highly impractical.

"The interaxial distance is only 45mm, meaning that its close focus point is quite a bit better than some of the other 3D cameras, plus it's a ten times zoom; it's a bigger zoom, which is better for documentary and actuality 3D production," said Buchner.

Martin Scott, Product Manager for JVC Professional talked us through the rather diminutive GY-HMZ1 professional 3D camcorder due for release some time in September 2011.

"The difference between this and the consumer version is that this does 24 progressive recording (24p for film-like semblance), and it's also got a more advanced audio input. The GY-HMZ1 will be priced between AUD \$3K to \$3.5K, and the consumer version will be priced at around AUD \$2200, so that's very affordable as well," said Scott.



Christopher Collins
with Robocam
insert



Con Michael Balconi
with camera
mount



Caileigh
Distin



Cheong
Yew Jin
Avid

3D Editing

Avid's Director of Professional Services in Asia Pacific Cheong Yew Jin discussed 3D post production using Avid edit suites, and the specific need for a dedicated 3D editor in the process.

"When it comes to 3D finishing or 3D online you would definitely need to have a 3D-ready online system.

That's one that is able to handle both eyes or both sources independent of each other. But at the same time you need to have some sort of metadata link or some sort of relationship that syncs the left and right eyes together, but yet for those eyes to be distinct and separate so that you are able to add effects independent of each other.

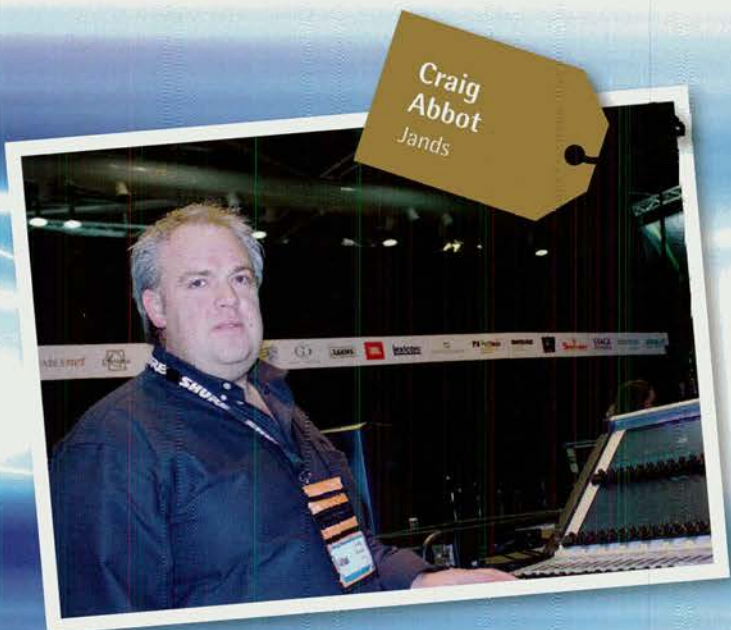
"You wouldn't want to edit one eye inde-

"TECHNOLOGY
should enhance, it
shouldn't stop work-
flow." *Con Michael, Balconi.*

"SOUNDRAFT
makes it very easy if
you're stepping from
analogue into the
digital world."

pendent of the other but you may want to apply an effect or treat a shot where one eye is independent of the other. One example would be if you want to effect the convergence of the shot where your object of interest is in 3D space; that's where you would need to control the position of the two eyes relative to each other.

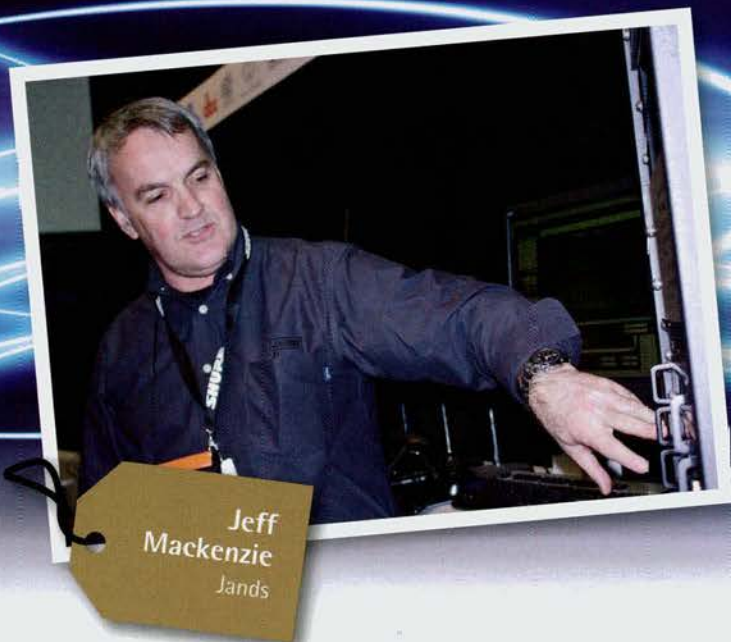
There are also situations, especially where you're shooting with two separate cameras where the right balance of one eye is slightly different from the other, so you want to apply a colour correction or apply two separate colour correction settings for both eyes so they can now match up. So there are many situations where you want to treat the two eyes separately. Another reason also is that when you treat the two eyes separately you are retaining the full resolution and the full raster of



Craig
Abbot
Jands



Hersh
Burston
Blackmagic



both eyes so you've got full quality on both your sources. Whereas if you were to mux or mix the two eyes right at very beginning you may not have the full resolution available to you," said Cheong.

There were a variety of Avid's non linear editing solutions on display that had at least some level of stereoscopic functionality such as Avid's Media Composer, which has the stereoscopic functionality already built in.

"There is no differentiation between a Media Composer and a Symphony system with regard to 3D support. At NAB of this year we actually had a technology preview on the main stage at the show, and that's where we looked at the next phase of where we were going. And really it kind of addresses a lot of the question marks, a lot of the issues that customers currently face, which kind of alludes to what I've been talking about," said Cheong.

Production Switchers

Ross Video's Canadian Marketing Product Manager Les O'Reilly demonstrated his company's new range of Carbonite production switchers, which are turning heads with their remarkable pricing in the video switching market.

"Carbonite is our new 2 MLE (multiple layered effects) broadcast production switcher that sits in our family of switcher lines between the Crossover series and our Vision series. Carbonite built off our Crossover product line, so it's not truly a version-one product. It is a new panel with a new processing engine but it's built off a common feature set and software that allowed us to get to market a lot quicker. It's loaded with 24 SDI inputs, 10 SDI outputs, dual multi viewer, four channels of 2D DVE (digital video effects), four channels of media store with 8Gb RAM cache that

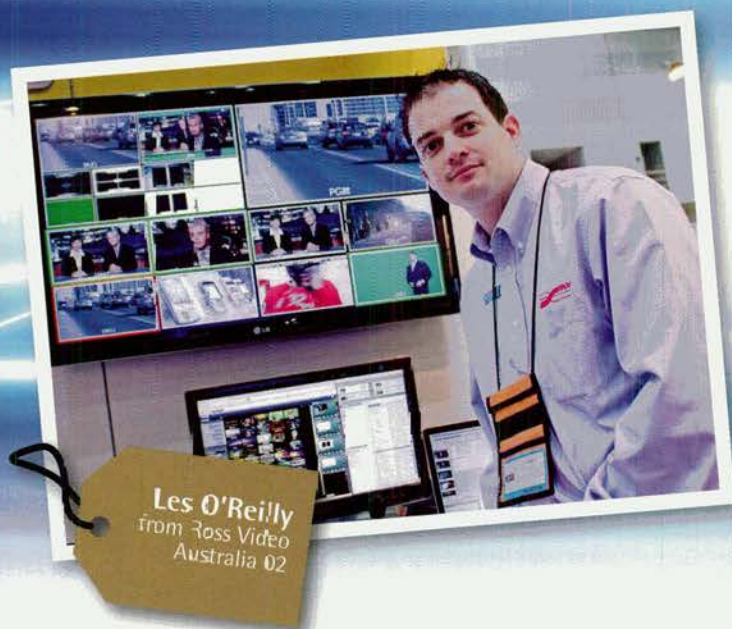
load from a USB hard drive that you just plug in and--that's your system hard drive. You save your show settings to that; you save your effects, your memories, and up to 10 different show set-ups. And then all your stills, graphics and animations are also on that. You load it from there into the media cache for those four channels of media store.

We've got six frame syncs and format converters that can be applied to any input, and a dual headed multi viewer," said O'Reilly.

The entry price point of AUD \$23K has the market quite excited.

Blackmagic demonstrated a number of switchers also for the price-conscious market, including its ATEM Television Studio, which starts with a full broadcast production switcher in a 1RU design that interfaces with a PC. It has real-time H.264 encoding for the capture of live events on a user's HDD for Internet distribution. Its starting





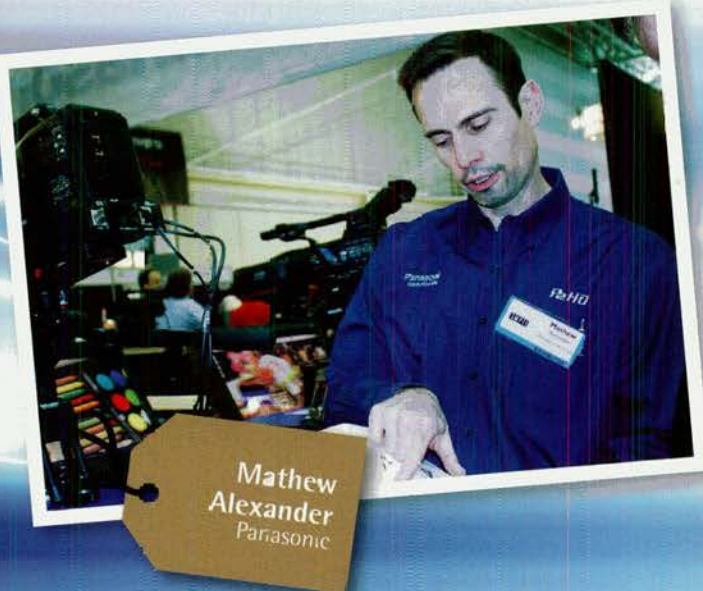
price was an amazing AUD \$1,009. For an additional \$5000 you can use these systems with ATEM's hands-on broadcast panel.

"You've got your switcher inputs, just like your normal switcher. You can hook up a hardware panel if you want. We wanted to make it in the reach of a lot of people's budgets," said Hersh Burston Senior Product Manager Blackmagic Design.

Robotics

Christopher Collins' background as a DOP in film and video was a forerunner to him inventing Robocam Pro. Collins' Robocam, which featured on the ABC's New Inventors, is a jib arm, track, tripod and motion control rig all in one. It is basically designed to capture sophisticated camera moves but within budgetary constraints.

"It was a product that I wanted but couldn't buy. I've always wanted a motion control rig or



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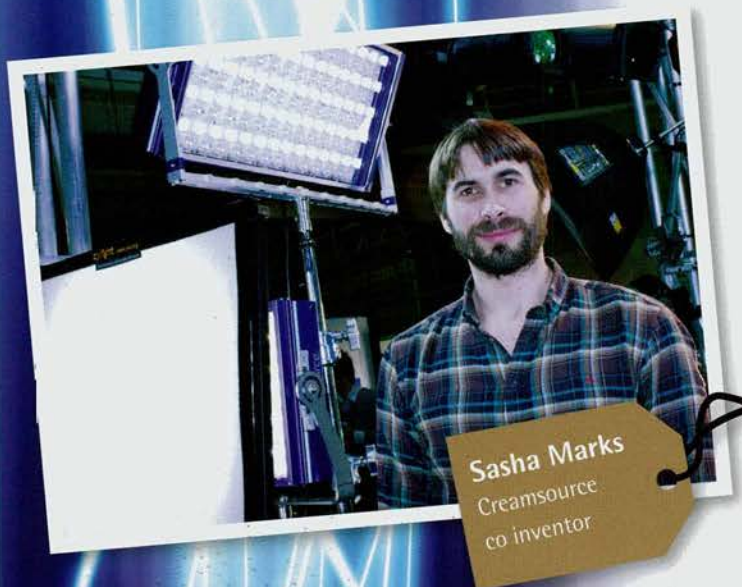
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something that did something repeatedly, and I looked and nothing was there, so basically I thought, 'I'll make one.'

"When we did the New Inventors we didn't have the complete software written and we didn't have it properly integrated; and that was always the dream, but it hadn't happened then, but now it has," says Collins.

Audio

Broadcast Workshop's SMPTE showpiece was the Nagra V1 eight track EFP/ENG recorder, which incorporates an audio mixer and features 8 analogue inputs including high quality mic preamps. Other features are SMPTE/EBU time-code and a chase synchroniser.

"It can record to the internal hard disc drive or to flash cards, which are hot swappable," says Anthony Sabatini.

Jeff Mackenzie was kept busy at the Jands stand extolling the virtues of Shure's Axient Wireless Microphone Systems.

Shure has given new life to the varied diversity systems of the past with Axient's frequency diversity mode whereby the transmitter actually transmits on two completely separate frequencies that are monitored at the receiver end. If a signal is experiencing interference it will be detected and replaced with the ancillary signal.

Jands' John Dignam was the go-to man for Clear-Com Communications, which has incorporated its systems into the IP domain. Clear-Com is now able to deliver high quality intercom audio including matrix communications over an Internet protocol network.

Soundcraft's UK Vice President of Sales Adrian Curtis was happy to pose for a CX shot in front of the Soundcraft Vi1 console at the Jands stand before handing us over to console savant Craig Abbot who spoke about the digital live console.

"Soundcraft makes it very easy if you're stepping from analogue into the digital world. It's very similar to an analogue desk; they've tried to lay everything out as per its normal channel strip. Any attributes of a particular channel are right there in front of you. In the design of both the Soundcraft Si and the Vi the R&D has obviously spoken to a lot of the users out in the world and asked what their preferences were and what they would prefer to see within its user interface," said Abbot.

News Gathering

Balconi's Chief Executive Con Michael employs the philosophy that solid broadcast solutions don't have to be complicated. And that is the embodiment of the Balconi Wireless Camera Mounted Live Streaming Solution, which is a ready-to-go system that can deliver remote location streams via satellite with studio control, and without the need for a PC.

"Anyone that manages this kind of gear knows that if you can't jump on it or use it in the rain it's not going to last. You can't just get a laptop out and start doing this stuff. It just doesn't work. If you're in the field and it's (teaming) with rain; there's been an aircraft crash or

whatever, you haven't got time to sit down, get onto an iPad, fire up and then be told by the studios, 'no you're failing, you'll have to change latency'. Meanwhile the cameraman is shooting everything and he can't afford to lose that; he just wants to hit a button and go. Technology should enhance, it shouldn't stop workflow," said Michael.

IPTV

Quinto's Mike Ellis showed off a snappy little product called Snap TV.

"Basically the Snap TV solution will allow you to take services from a variety of places. So you could take all of the off-air free TV services, for example, plus in-house video feeds, satellite feeds, content that is internal like video on demand or content previously recorded. And we can make all that available on set-top-boxes on an IP network, and also available to web clients at the same time," said Ellis.

IPTV IS SET:

Did you know
80% of all
broadband will
be video by the
end of THIS
year? That's a
lot of content!

"With Arri's like-for-like fresnel you're not sacrificing anything by going to an LED. So you get a single point source; you're not getting the fruit-loop effect. You can see that it just looks like a normal fresnel and nobody can tell the difference, which is what you want. Fresnels do a job and they do it well so all you need to do is replicate that. You're drawing just over 200 watts and it's equivalent to a 1000-watt output.

You can barn-door them, you can focus them from spot to flood and they function in every bit the same way as a tungsten fixture, except you don't need a dimming system. It's all run on-board, all by a DMX and with no fans on board so it's completely silent, and with this one you can actually replace the LED module," says Harrington.

Sasha Marks was on hand at the Barbizon stand to discuss the Creamsource high power LED fixture, which he co-invented in Sydney with work partner Tama Berkeljon.

"We saw there was a gap in the market for a really high power, well-built, fully controllable LED source. It has various lens options so you can have it as a spot lamp, which is like an HMI or even a PAR light, or like this configuration here (points to a fixture), which has got wide angle lenses-

-so it's quite soft but still very punchy. You can put it behind a soft-box, and we've got a soft-box available for it. We've got a little remote control for it so you can control the brightness and the colour temperature as well. They are fully DMX controllable so they're good for studio rigs, and you can also link them together and control them as one source. You can use it as a key light or a wash, so it's quite versatile. In the white range you can adjust it from around 2700 degrees up to 6500 degrees," said Marks.

Summary

SMPTE 2011 had a real vibrancy about it. Mixed with the excitement of the 3DTV revolution was an air of confidence in the entire digital domain--a realisation that the digital industry is learning to do things better and simpler. High definition monitors were crisp and clear and LED lighting was bright and cool.

Evolving technology means high definition television broadcasts are beaming over IP networks, and broadcast cameras, which have charged into the solid state revolution can now dump masses of content into humble flash cards. If there is a single message that SMPTE 2011 has endorsed it is that broadcast has always been an exciting and evolving arena that has never been boring and never will be.

Lighting

The Barbizon Lighting Company featured a number of innovative lighting products including Arri's like-for-like L-Series LED fresnels. Marshall Harrington explains:


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By Jimmy Den-Ouden

▶ **Electrovoice RE320**

Sometimes split personalities can be a good thing...

Electrovoice have a long heritage in sound, long enough that I wasn't the first to find myself using their gear as a kid. Probably the two things which come to mind about this particular manufacturer are reliability and predictability. They just seem to make gear which goes on and on and on, and 10 years after you bought it, still sounds the same.

The RE320 looks set to fall into this mould. It's a dynamic microphone with "dual personality", which is a fancy way of saying it has a switch to change the frequency response characteristics. But let's talk about the superficial stuff first. The RE320 is built out of metal and my parcel scale tells me it weighs around 650g. That's not too bad for a studio microphone, but it does make it a very heavy live sound reinforcement mic. I found myself wanting to drop it down the stairs a few times to see if it would survive. I reckon the odds are pretty good in its favour, but since it wasn't my mic you'll just have to trust me when I say it feels well built the same way a Maglite torch or P3000 amp does.

Just Listen

I plugged the RE320 in and started out with having a good listen to some silence.



It passes the noise floor test – the mic has an integrated hum-bucking coil to reduce noise floor. It works. There is some noise evident when handling the mic – nothing like what you'd get on a similar sized condenser mic, but there's a bit. Given the extreme size and shape of the RE320, it's clearly not designed for handheld use. On a mic stand it's fine, but just make sure you use a decent stand and tighten it up well to avoid droopage.

The pickup pattern is great. The mic sounds clean and detailed without being overly weighty down low when addressed from the front. The side axis noise rejection is unbelievably good – you can make as much noise into those side vents as you want but very little of it will translate to an output. You definitely don't want to hang this mic over a guitar cab sideways – put it on a stand and make sure you have it pointed in the right direction.

In "kick eq" mode the dual personality switch seems to drop a bump out of the response of the mic around 300Hz, as well as bringing the low end response up a few dB around 50Hz. The 3kHz region picks up

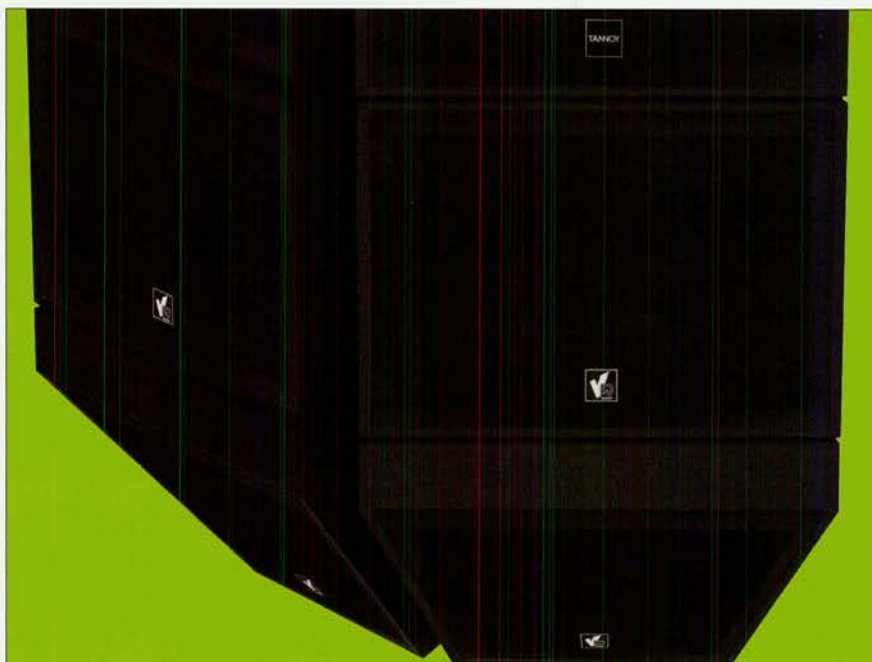
a little too in this mode. The other switch position smoothes things out a little and gives you a nicer vocal response curve. Try as I might I wasn't able to upset the RE320 with SPL – th's from a guy who once busted a vocal mic with his voice. The in-built pop filtering would make this a perfect mic for pod-casting applications, and given the price it's a nice affordable option for home users as well as professional ones. For the money you get a nice strong clip with the mic as well as a rugged carry case. Following what seems to be the tradition of things EV, the RE320 provides predictable, reliable performance at a reasonable price.

For video of this GEARBOX review, click here in the interactive CX-E version of the magazine. If reading print, please visit juliusmedia.com to find this review.



Brand: Electrovoice
Model: RE320
RRP: \$399.00

Product Info: www.electrovoice.com
Distributor: www.boschsecurity.com.au



Ef-fi-cien-cy n.

1. The ratio of useful output to total input in any system.
2. The ratio of energy delivered by a machine to energy supplied for its operation
3. The ratio of performance return based on financial investment.
4. Defining characteristic of Tannoy VQ Series.



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HK Audio Elements

Who said line arrays need to be expensive?

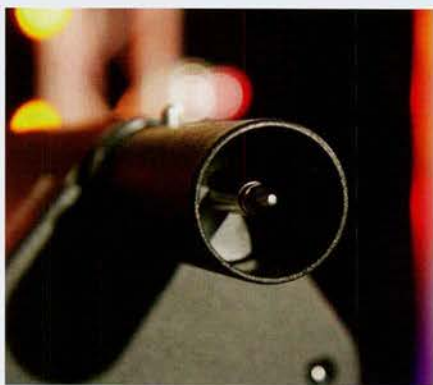
By Jimmy Den-Ouden

Whoever would have thought Hans and Lothar Stamer's little speaker building operation, started in 1979 would have become what it is today? Well they did, and today we have HK Audio from Germany. Their latest product offering in the land of speakers is the Elements system.

Elements is a scalable mini line array, designed to go together quickly and without too much thought required. It's made up of several main components – mid/high array elements, subs, and amp modules. The story all kind of starts with the EA600 amplifier module, which is cased in the same form factor as the E435 mid-high unit. From the front, they look identical. The EA600 will drive up to 600W into a 4 ohm load. The individual component impedances are such that this means you can use one EA600 to drive 4 mid/high units, or two mid/highs and a passive sub, or even two passive subs.

HK clearly did some thinking and realized that the space beneath an array is usually only used for looking sparse, so they made the amp look like part of the array. Saves space elsewhere and gives the array itself a more consistent appearance. Speaker connections are another clever aspect to this system – there's an NL4 Speakon output on the EA600 to link to subs, as well as an integrated jack in the pole mount which links automatically into the E435 module. No cable required, so it looks tidy. Just plug in signal and power cables, then click your E435 modules into the top of the amp. The amp itself can mount in to the top of the sub, or an optional heavy duty tri-base. Just remember to select how many E435 units are in use using the dial on the amp, and it will figure the rest out for itself.

The E435 is super lightweight (2.35kg),



▲ Integrated connections in pole mount



▲ Tri-base for mid-high and amp modules



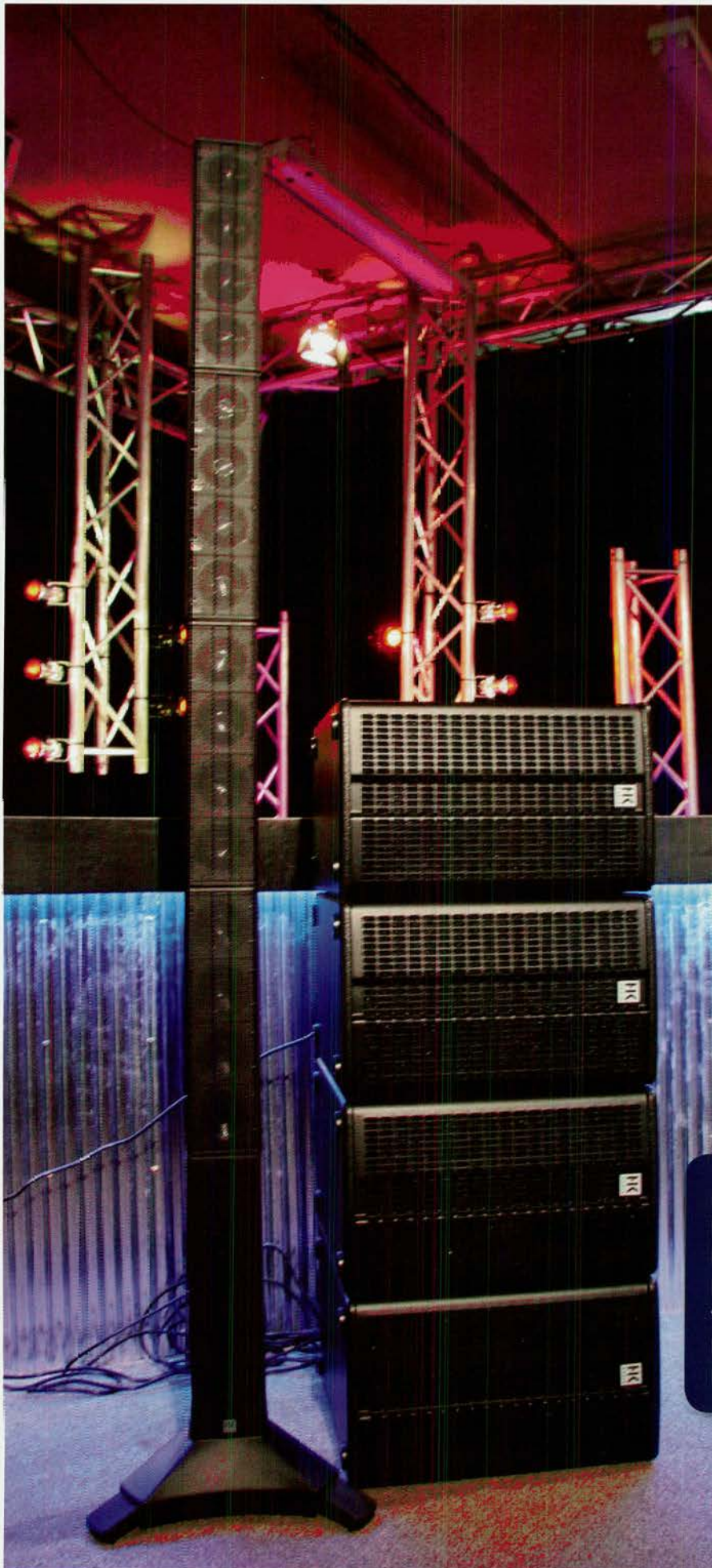
▲ Dumb sub with brainy sub beneath

and comprises 4 x 3.5" drivers, which HK have developed in cahoots with Celestion specifically for the Elements system. They run about as full range as can reasonably be expected from 3.5" units, and for its size the E435 gets pretty loud. It's rated at 150W RMS, and ganged in sets of 4 this is a perfect match to the E600A. It's not scary loud, but nor is it shy. More impressive than the level is the pattern control – the 70 degree horizontal dispersion seems pretty accurate and the vertical beam width runs as high as the array is built. It seems to hold well over distance too.

Getting Low

The E435 is nice, but it's only rated down to 140Hz and that's a few dB down. So you need subs to get full range out of the Elements system. The E110 Sub is a "dumb sub" – it's a passive unit with no internal amplification. You need to run it from either an EA600, or alternatively from its friend the E110 Sub A powered sub. Each E110 Sub A can run an E110 as well – they just link with NL4 cables. The sub can be oriented in a number of ways, and it stacks well too. With 600W internal amplification, the single 10" sub weighs 19kg. The system we tried out included stacks of everything, so we tried it in the biggest config we could which was 4x subs and 4x mid/high units a side. It plugged together easily, it worked first go when we turned it on, and we like how it sounded straight out of the box.

While I wouldn't call Elements a large scale rock PA, it more than cuts the mustard for jazz, acoustic and corporate gigs. Plus it has the right kind of sound for these shows. Elements is an especially big winner for corporate users & AV companies. The beam



◀ Half a full system

width characteristics of the system mean it would work well with stuff like lectern mics and lapels – commonly feedback nightmares. Vocals sound great on this system. The sightlines afforded by a FOH system less than 4" wide are stellar, and you can still aim the sound where it needs to go. The system is simple enough that small musical acts, and entry level technicians should be able to piece it together with consistent ease

Aside from the operational benefits afforded by the Elements system is the scalability. Not everyone will need or be able to afford a full scale system in the first instance. No problem, start out with a couple of E435 and EA600 modules and subs, and build the system over time. It's usable in small configurations as well as large ones. There's even an iPhone app to help you choose the best configuration for your application – see the HK website for details.

Brand: HK Audio

Model: Elements

RRP: EA600 \$1050, E435 Mid/High \$685,

E110A Sub \$1895

* Expect to pay less in Australia

Product Info: www.hkaudio.com

Distributor: www.emi.com.au



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BlackmagicDesign HyperDeck Shuttle



HD just keeps getting cheaper, smaller and easier...

By Jimmy Den-Ouden

HD sources, and especially HD cameras are now more affordable than ever. Switching technology has now started to follow suit. The problem we've faced is that recording a switched HD stream wasn't so easy, or affordable. The HyperDeck Shuttle changes that. This pocket sized, rechargeable SD/HD recorder runs on batteries and SSD drives. Retailing at well under a grand, it also claims a new price point in the market.

The HyperDeck Shuttle looks like a slightly oversized 3.5" hard drive casing, only sexier and with buttons. Buttons you'll recognize, like record, stop and play. It has a slot in one end which accepts a 2.5" SSD drive onto which media is recorded. The same drive can then be dropped into a USB or E-SATA drive caddy to transfer media to your editing machine. You can even edit on the SSD directly if using E-SATA.

Getting in and out

The HyperDeck Shuttle has HDMI input and output connectors as well as SDI input and output which work in SD or HD. It records full 10 bit uncompressed video as AVI files, and can even operate from its internal battery. Plug in the source, and the device will figure out what video format you're using and auto switch. Then press record. It's so stupidly simple to use that the manual is a total of 2 pages long. There is a USB port for software updates, and a 12v power input into which you attach the supplied adapter to charge the unit.

The SDI connectors are mini BNC, and this is perhaps the only real failing of the unit. It's too easy to look past the amazing technology contained within the case when you're distracted by the non-standard connectors on the side. Normal sized BNCs would have been better, but perhaps they wouldn't have fit. How they fit everything in already is something of a mystery to me... There are no audio inputs – the HyperDeck Shuttle records whatever audio is embedded into your video signal. That's up to 8 channels on HDMI or 16 on SDI. Blackmagic Design make a suitable embedder to facilitate getting audio attached to your video signal.

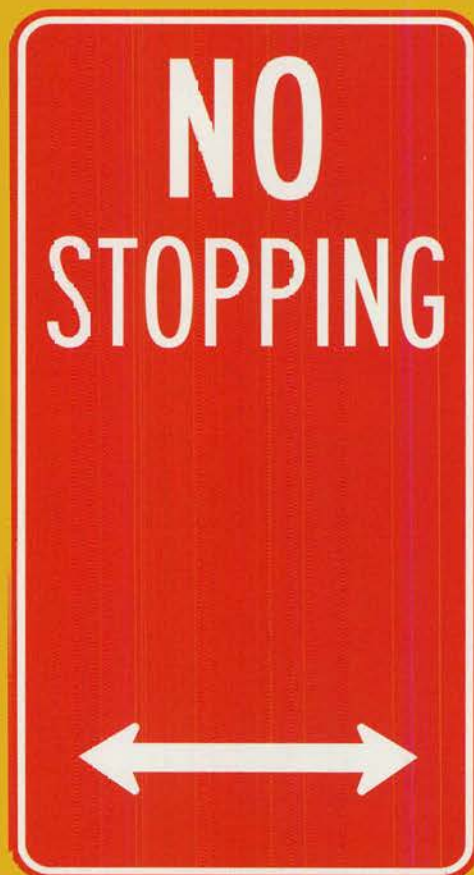
Being as SSD has no moving parts it's far

less susceptible to shock than conventional hard drives. It also has faster access times too. Sadly this makes it far more expensive than a conventional drive – around \$240 gets you 120Gb capacity. Or 12 minutes of true HD. The fact is however that to record HD video you need the kind of transfer speeds that SSD and its competing technologies afford – it's an inescapable truth. What the HyperDeck Shuttle does makes it way more affordable to get the data into these devices. With 4:2:2 video sampling and support for all the common HD video formats thrown in to boot, we think it's an absolute winner of a product.

Brand: Blackmagic Design
Model: HyperDeck Shuttle
RRP: \$359.00
Product Info:
www.blackmagic-design.com
Distributor:
www.blackmagic-design.com

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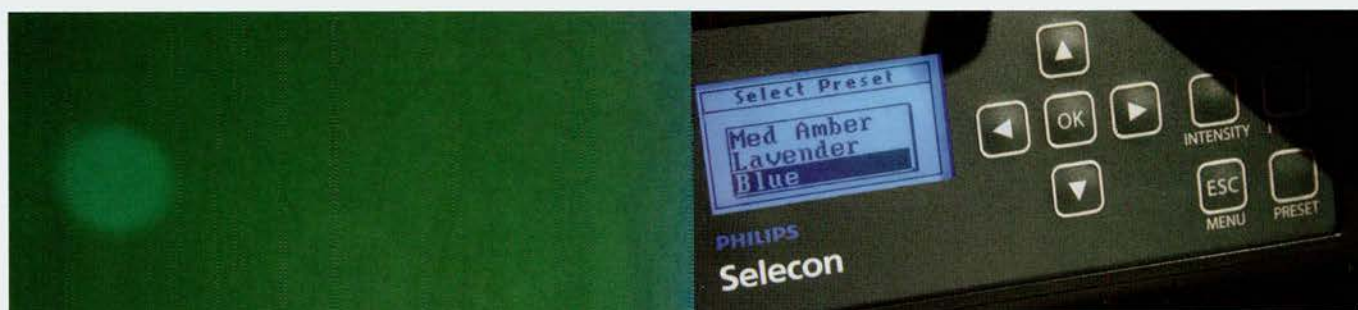
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**Lots
of
Watts**



Philips Selecon PL3



Philips Selecon
join the party with
their LED offering to
the theatre market

Looking down the snout of the PL3 I'm reminded of the Va-i*Lite VLX, and since they use the same light engine this is perhaps not unexpected. The PL3 uses 3x 120W LED modules, and each module is RGBW. This is great since combining the colours into one lens assembly means you don't get colour shadow effects.

The maximum current the PL3 draws at 240v with all LEDs running at full is 2.35A – around 400 watts. It weighs in at 10.1kg with no accessories attached, and sits 310mm high not counting the yoke. This all seems pretty monstrous by comparison to some of the LED kit we've seen recently. Why so? The simple explanation is that big light = big output... > 6000 Lumens when running in white.

But when compared to what it replaces – a 1,200w Fresnel, it is exactly on the money.

The PL3 is touted on Selecon's website as being able to rival 1.2kW tungsten fresnels when run in open white. In our tests we found the claim seems to be pretty valid. The beam angle of the PL3 has a massive zoom range, from 5 to 55 degrees. This is motor controlled and can be adjusted via DMX. There's a motorized yoke option to

By Jimmy Den-Ouden

control pan and tilt via the same too. Probably worth remembering is that these are not indexed functions, because they're intended to be focusing tools. The PL3 is not a moving light – better to think of it as a very clever pole operated fixture where the pole happens to be the lighting console if you opt for a remote kit.

Hands on

The PL3 has PowerCon input (but no loop output) and 5 pin XLR in and loops for DMX – all pretty standard. What's not so standard is the control panel – it's very comprehensive and lets you make adjustments quickly. Dedicated buttons for intensity, colour and zoom get you straight to where you need to be. The backlit LCD is easy to read. You could conceivably setup a lighting state without a console if the need arose. The fixture also supports wireless DMX and IR controls. The infra-red influence seems to originate from the architectural market where such features are used in galleries and so on.

To allow integration with existing light sources (tungsten and otherwise), the PL3

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is capable of colour temperatures between 3000 and 5600K. So far as colours go, they're strong and bold but not at the expense of subtlety. Running strong colours with a wide open beam, the output strength of the unit quickly became apparent to us. Consider for a moment that using a conventional fixture to produce colour, you're actually producing every colour and filtering out the ones you don't want. With LED fixtures you literally are just producing the colours you need, so naturally it's more efficient. It also runs cooler, and this theory holds with the PL3. There are cooling fans in the back of the unit, but we didn't notice them making any significant noise during our tests. Theatre people are you listening?

Build quality feels very good to us. The plastic yoke as seen on the SPX makes an appearance on the PL3, and the tilt lock is nice and precise. In terms of pricing, the PL3 sits on the upper end of the market – and it sure doesn't feel cheap either. The zoom is really amazing – reading the spec on paper is one thing but playing with it in person is totally different. The light field remains flat throughout the range, and the



▲ PL3 wide



▲ PowerCon and 5 pin XLR with loop throughs for DMX

colour integrity holds throughout dimming.

A 3-year warranty from Philips Selecon covers all the normal things as well as premature failure of the LED engines, which have an expected life of 25,000 hours before degradation of the output. In normal use, this should run out to five years.

Probably the only thing left to mention is that the triple lens configuration looks a bit weird. This will confuse some people, however such confusion is likely to be forgotten once they realise the exceptional capability of the fixture. If you love the PL3 as much as we do but don't need so much output, check out the smaller single engine brother – the PL1.

Brand: Philips Selecon
Model: PL3
RRP: \$4999 plus GST
Product Info:
www.seleconlight.com
Distributor:
www.seleconlight.com

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Martin Mac 101 Mini LED mover

Lots of audio gear is getting smaller, now it's lighting's turn...



By Jimmy Den-Ouden

Opening the box from Show Tech I was a little surprised to find 2 inner cartons, each containing a Mac 101. They sent me a pair. I like pairs of things.

Unwrapping the fixture brought on a brief fit of hysterics, triggered by the massive size of the unit – or rather its lack thereof. The Mac 101 is tiny. Outwardly it looks like something you could buy on ebay, but don't get me wrong here. It doesn't feel like the construction is cheap – it's just extremely compactly built. I can *comfortably* lift it on my pinky finger. It weighs bugger all – 3.7kg. This means you can easily case and rig the unit in large quantities.

The minimal base of the fixture contains PowerCon input and loop through as well as 5 pin XLR in and loop connectors for DMX. Nice to see Martin opting for 5pin rather than 3. The setup menu is a simple 2 line LCD affair, and you find it on the head of the unit rather than the base. Presumably because that's the only place it would fit. With all LEDs on, the total output of the fixture is 2300lm, with a one-tenth peak angle of 12.5 degrees.

The Mac 101 is an RGB LED fixture, and the smaller brother to the Mac301. Running at full tilt it nibbles on a meager 123W of power, meaning you can daisy chain many fixtures on a single power run. When it's doing nothing at all, power consumption drops to about 25W. Rigging is via a single M12 bolt hole, so you can just use a normal hook clamp. The fixture is happy running in any orientation you can think of.

There are no included beam adjustments – you're basically locked into the factory beam unless you opt for the medium angle diffuser or top hat attachments. We reckon the factory beam is pretty good. An 8 unit roadcase is also optional.



▲ Integrated connections in pole mount

Punching on

Powering up the Mac 101 in our studio we quickly give away any pre-conceived ideas about output. From the office nearby Julius shouts out "wow that's bright". He doesn't have a direct line of sight to the fixture. "Yes, painfully so" I reply. And fast. Stupidly fast. Full 540 degree pan in around 2 seconds, and 240 degree tilt in about half that. Running some basic movement around the room the Mac 101 seems to be able to keep up with the commands issued to it by the console more than adequately. Indexing of positions seems pretty accurate, though if you get in the way of the yoke this can cause it to lose its way a bit. A quick reset fixes this.

The Mac 101 is very punchy on single colours. The Red, Green, and Blue LEDs are separated so at close range you do get some colour shadow effects. Given that the Mac 101 seems at its core to be a beam effect unit, this is hardly an issue. We compared the fixtures output to an 800W redhead on spot setting. A little unfair? Perhaps not... The redhead beam is wide, while the Mac 101 has a much tighter, brighter and more concentrated beam. See our video comparison projecting white light onto a blue scrim. It really is a spot effect. The fans can be run in regulated for full speed modes. Regulated mode seems very quiet – not even enough to register on our SPL meter. Running at full speed, we clock the fans at around 54dBA at 1m. We left the fixture on for a while and still the fans didn't reach any perceptibly noisy kind of speed. Motor noise is extremely low too. It's a very quiet fixture.

The more the merrier

You wouldn't use a single Mac101 on a show, but looking at the price you really wouldn't need to. Given you can get several Mac101 units for around the same price of a single larger fixture, it makes sense to go nuts with these things and have a nice distributed effect. Most decent lighting consoles have provisions to program multiple fixtures very quickly, and this is a feature you'd want close at hand if you were using a lot of Mac 101 units. We've even heard of people doing basic pixel mapping on a grid of 101s! The Mac 101 is a great little fixture and used in sufficient quantities certainly gives scope for some serious wow effects.

Brand: Martin
Model: Mac 101
RRP: \$2471.00 plus GST

Product Info:
www.martinpro.com
Distributor: www.showtech.com.au





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EAW

33 years on



One of the longest established pro audio speaker lines has a long history down under. Julius Grafton charts the journey

In the early 1990's Production Audio Services of Melbourne wanted to expand from their traditional broadcast audio business and went looking for a serious high end audio line. Community was a brand that had traction at the time, but was not available to Production Audio Services.

EAW appointed the firm as its first national distributor, and the KF 650 was the first product to come into the country. 'Not quite the first, since McLean Audio already had some', says Graeme Stevenson from P.A.S.

Norwest Productions was emerging as a new force in the Sydney audio scene after its near death experience as A1 Audio. Chris Kennedy bought some JF 260 boxes – his first new loudspeaker choice.

Before too long there was a national network of rental firms with KF 850 systems, all powered with Crest amplifiers, which was the other main pro line for P.A.S. 'It was the first time anyone had a national network', Graeme says. The 850 was a hot product at the time around the world.

Olympics

Connections Magazine reported in 1999 on the competition to supply speaker systems and designs for the Sydney Olympic's ceremonies – with sound designer the late and great Bruce Jackson presiding over a scrum of distributors with concepts ranging from very serious (VDosc) to ridiculous (things lashed together on a cart).

P.A.S. had imported some KF860 quasi line array boxes which were designed for an installation for the half time show at the Super Bowl in the USA. The KF860 boasted a lot of bottom end and a slightly taller vertical dispersion pattern which meant several together could do the coverage needed.

What probably won the deal for EAW at the Olympics was the last minute decision to demonstrate a cluster of KF 750 boxes to cover the very high temporary seating stands at each end of the stadium. Each stand carried 15,000 seats! The consistency of the 860's and the 750's with no need for subwoofers saw the deal signed. Norwest won the bid, using EAW. EAW, PAS and Norwest all had a significant reputation boost.

Then came the VDosc revolution and with it an avalanche of line arrays from all and sundry. EAW launched the 730, the 740 and the 760.

Philosophy

Eastern Acoustic Works was started by Kenton Forsyth in 1978, and was soon known as just EAW. Kenton remains at EAW to this day. They applied science to design and asserted that anything they claimed must be measurable and verifiable using actual mathematics, not just claimed via marketing.

With the KF 750 in the late 1990's some notable technologies became obvious – for

example, US Patent #6,118,883 in 1996 detailed low frequency spacing to match beamwidth through crossover within a horn. Thus the KF 750 arrived with the high frequency horn and the mid driver sharing a magnet assembly, with the dual low drivers placed in such a way the output appeared more coherent. In the old days we talked about 'propagation', at a time when the distance between the low box (W bin), mid box (4560 or roy bin) and high frequency horn was as much as 2 metres!

The KF 750 with Concentric Summation Array (an EAW trademark) got this down so tight that the low, mid and high components sounded like the same source.

Another innovation came with the large football stadium system called the KF 900, named Phased Point Source Technology, or PPST. PPST involves generating high-resolution measurement data for each separate element of a loudspeaker array and using this to model performance at a variety of listening locations. The goal is to manipulate the signal path of each array element for maximum integration and minimal interference. PPST is then capable of specifying DSP configurations for each transducer/horn element. These DSP-controlled elements are used to create arrays custom configured to venues ranging from moderately sized music sheds to the largest stadiums. In the case of larger venues, consistent SPL can be maintained over the entire audience area – from just a few metres below the array to over 200 metres away from the system.

First to steer

Although audio 'firsts' are usually hotly contested, many say EAW were first to implement a commercial product that focuses low end. In Audio lesson 101, teachers show students the directionality of the high frequency horn. Walking off axis,



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it is obvious that the output ceases. But low frequency tends to be omni present.

Dave Gunness at EAW developed beam steering out of the PPST technology, and ten years ago it arrived with the KF730 line array. Side firing low frequency drivers were part of the solution to achieve low end directivity.

Now EAW have adapted the focusing technology and released a processor, the UX8800 digital processor - for an ever-increasing number of conventional EAW loudspeakers. EAW is regularly developing and releasing optimally tailored, finely tuned filter sets for upload to the UX8800 processor. These allow existing and coming EAW products to benefit from the technology.

Speaker families

After the KF750, the line array decade commenced and EAW progressively released product. The KF760 is the large format line array, with each cabinet loaded with 2 x 12" low, 2 x 10" mid and 2 x high frequency devices.

The KF740 took steering to a whole new level with 4 x 10" low drivers, one mounted on each side.. They provide as much as 18 dB of off-axis rejection. Mids are 2 x 8" and there are 2 x high frequency devices.

Also in middle sized comes the KF730 SLAM (Small Line Array Module) with 2 x 10", 2 x 7" and 2 x high frequency devices.

Down at the small end of the market, the NTL 720 (self powered) and the JFL 210 line arrays are joined by new point source boxes like the KF200 which packs three way performance and self power into a small box. CX reviewed this recently, and found the power to weight and size ratio set new benchmarks for performance. Recently a KF300 joined this line.

Around eleven years ago, EAW introduced a nightclub installation specific line of nine products called Avalon. These had added aesthetics, along with tapered angles on some boxes for better fit against a ceiling.

Sub time

There's always a divide in speaker brands between how things are designed in subwoofer land, and the relationship with the mid/high boxes. Some brands have subs that are better than the top boxes, some the other way.

EAW's subwoofer lineage is cemented by the SM1000, which is still the favourite of many. Loaded with dual 18" drivers, it is joined by no fewer than 13 other SB subs. The subwoofer lines are organized into four sets of direct radiating devices, ranging from 8 inch to 18 inch, then three bent horn units. Last year they released the SB2001, a large-format dual-21-Inch loaded subwoofer.

All up, EAW offer thirty different models of subwoofer, including the Microsub. This is designed specifically as a drummer's subwoofer, complementing the Micro-wedge, designed by legendary sound guy Dave Ratt. These are a unique line of four wedges, designed to work together by a sound guy who has battled some of the loudest musicians on the face of the earth. They in turn sit in a line up of eight other SM and VRM series floor monitors.

Digital

Recently EAW launched the UX8800 digital processor, with four inputs and eight outputs. It enables Focusing technology for a growing number of conventional EAW loudspeakers, with new downloadable settings available free at regular intervals. This is a great way to improve the performance of existing EAW speakers, and also maximize output - if users choose to enter the gain and parameters of the amplifiers in use. This fine tunes the limiter function.

Users are reporting that the UX8800 is breathing fresh air into their systems, without having to do anything to the amplifiers or speaker boxes.



Big picture

Most industry observers would have noted a downturn in product releases from EAW over the last five years or so. The parent company Loud Technologies went through digestion pains after acquiring Martin Audio and Mackie over the last decade.

Recent management changes along with investment have allowed EAW to develop new products, revived the mojo and raised the profile of the firm. One of the quieter aspects of EAW around the world is its penetration into the installed audio markets, which it chooses to keep quiet. Installed audio is said to be four times greater in size than the touring markets.

There have been many large-scale arena installations of EAW systems in the USA, where an increasing trend is to specify systems that can supply entertainment audio reinforcement as well as spoken commentary.

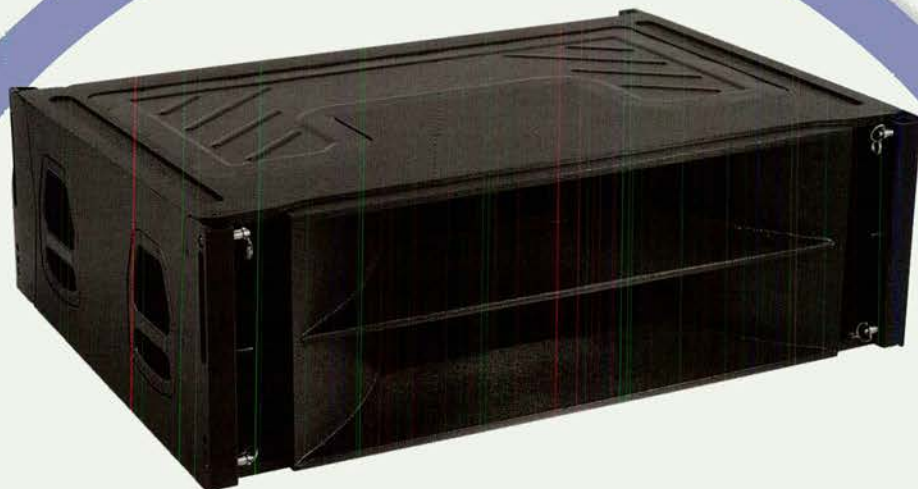
EAW also have a strong alliance with the people behind the SMAART tuning and analysis platform which is used by many independent designers, acousticians and consultants.

After thirty three years, it appears the EAW brand is set to march on another four decades plus.



BACK IN BLACK

EAW never went away, but a quiet spell has ended with new designs and some very big stadium contracts happening now!



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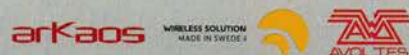
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revolutionizes venue design

SOME ARE FAMILIAR WITH THE IDEA –

to adapt a venue using active audio design, so that a dead sounding space like a cinema can become a recital hall – at the press of a button. It took Meyer Sound to make it be. Julius explains:

Last year in Melbourne, the International Symposium on Room Acoustics received a paper on how Meyer Constellation could redefine the size and finishes inside a venue, potentially saving not only millions in build cost but also slashing heating and cooling costs.

Then at ENTECH last month, we saw and heard how.

Renowned Pavarotti live sound guy John Pellowe explained to punters that you can now press an iPad button and change the world you are in.

Here's what happened. The Meyer Con-

stellation demo on the trade show stand was compromised by the acoustics in the hall. Over the way, some nutcase exhibitor thought playing the first four bars of 'Back In Black' by AC/DC was a great way to sell a speaker system. So they did just that – play the track often (not sell the thing), to everyone's major irritation. Often. Load the gun, Abdul.

Meyer Sound Australia duo Steve Devine and Harley Richardson stuck their necks out with Meyer Sound Laboratories USA and invested 60 grand to stage a three day demo at ENTECH. It meant flying a grid above the stand, to contain the elements of Constellation.

Constellation It is a system that actively enhances the acoustic space. It is not a PA system, or a sound reinforcement system as we know it.

The two dimensions

Imagine your venue, with the best sound reinforcement system you could afford. The given factor is that the reverb times are set in stone by the architects design. If the place were built as a concert hall, it would be optimized with a long reverb of maybe 2 seconds or more.

Check these reverberation numbers that

architects strive to achieve when drawing their venue designs.

Cinema 0.4 seconds
Classroom 0.6
Drama theatre 0.6
Speech or music 1.0
Jazz venue 1.2
Chamber music 1.4
Opera 1.7
Symphony 2.2
Pipe Organ 2.5

Non sound people will not always appreciate these are widely different reverberant timings, and that 2.5 seconds is an absolute eternity.

Beranek wrote Concert and Opera Halls and says, "all carpets, draperies, and sound-absorbing materials must be eliminated from the hall, and the audience must be seated in as small an area as possible."

To get acceptable results, an opera or symphony venue needs a lot of volume and a lot of audio unfriendly reflective

surfaces. Once built, that's what you have; and these venues struggle when attempting to stage other shows.

So: what does Constellation do? Usually using more than one hundred small powered loudspeakers installed through the venue, and somewhat less microphones, hung from the ceiling, the D'Mitri audio processing platform performs processing to transform the space.

Meyer provide design and installation guidance for a Constellation system – no two venues are alike. The venue needs to be carefully measured and analyzed beforehand.

Constellation in use

To demonstrate on a trade show stand, around forty Meyer powered speakers were positioned above, facing directly down. Sixteen reference microphones supplied input to the D'Mitri processing platform.

Maestro saxophonist Janet Levy played a few bars, with no sound reinforcement and the Constellation turned off. John Pellowe turned the system on, and you could see

the audience of around 25 hardened trade show punters recoil in surprise. Suddenly the sax filled the air, and when you closed your eyes, you were in a concert hall.

The sixteen microphones were all hearing the sax at slightly different times, relative to their positions. The processor was performing a complex routine, proprietary to Meyer, at the highest possible sample rate (96kHz). It was simultaneously supplying forty independent audio feeds, one to each speaker.

The algorithm tailors each speaker output to an exact formula to enhance the SPL level that the microphone nearby registers. Too much, or too little amplification would throw the entire system out.

"You need to capture the performance within 5 metres of the stage as directly as possible", said Pellowe. "Then the microphones over the auditorium grab the indirect sounds. The sound is returned with loudspeakers. Constellation is totally separate to the venue system".

Later Pellowe explained that this is a system made possible only by the evolution of digital signal processing, and that the

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▲ The sax isn't running through a PA, yet the Constellation does a massive job

technology is now enabled to make sure that the system output is not dogged by digital artifacts.

Then Pe Lowe switched the system out to very long, very reverberant space and we were in a cathedral.

Finally, he asked us to applaud Levy, which was not difficult to do. Midway through the applause he turned off Constellation, and it was like being dropped out of an airplane without a parachute. The applause had been enhanced within the artificial space that Constellation had created, and as soon as we were left alone in the trade show acoustic our clapping was thinned out.

Applications

A case study (Meyer have quite a few) focuses on the use of Constellation at Northland Church in Longwood, Florida. There, a nominal 1.3 second venue acoustic (fairly dry) is changed according to program.

Audio Director Steve Groves explains, "The clarity of the main PA is so good that adding in Constellation doesn't impair intelligibility. It just gives a better feel to the room."

Like some successful modern churches,



▲ Baby Meyer MM4 XP powered speakers

Hillsong in Australia is an example, musical styles heard at Northland are astonishingly diverse. A single worship service can move effortlessly between folk, classical, soul/R & B, rock, and various ethnic-influenced styles. With Constellation, each can receive

the optimum acoustical setting—with changes sometimes accomplished between successive songs.

Steve Groves relates a typical example. "A couple weeks ago, we started out with an up-tempo praise song, then went into

an acapella arrangement of "Amazing Grace", and after that straight into another up-tempo song. During "Amazing Grace," I reached over to the touchscreen and put Constellation into the Long setting, to give it a larger, more traditional sound, and really let the congregation hear themselves," he says. "When they hit the last note, I went back to the Short setting."

Tim Tracey, Northland's executive director of worship, recalls one memorable introduction to Constellation's unique capability. "We were rehearsing a bluegrass gospel song, "Get Up John," at first just through the main PA. Then we turned on Constellation, and it was amazing," he says. "All of a sudden we had much more air in the acoustic instruments and vocals."

The system produces a more compelling environment at times when the audience are singing. For Northland, adding the system enabled recitals and concerts by orchestras, which sometimes were paid venue hires. Not possible without the Constellation, as an orchestra will usually not perform in a non orchestral space.

Physical Acoustic Requirements

Before Constellation, designers were hamstrung.

"Rooms that will be utilized for multiple purposes need to have a nominal reverberation time that is short enough for the least reverberant use", wrote Steve Ellison and Roger Schwenke in a paper, 'The Case for Widely Variable Acoustics' also presented at ISRA in Melbourne last year.

"Traditionally this condition has been for speech. However, rooms that accommodate multi-channel audio playback need to be even less reverberant. It is within the capabilities of active acoustics systems to extend the reverberation time so that the room will be suited for reproduced sound, speech, and amplified and acoustic music."

Harley Richardson from Meyer Sound Australia cautions that not every venue will benefit from Constellation. Some remedial work on the actual acoustic may need to be done first.

Where venue designers or managers have the need, Meyer Sound Laboratories will come calling.



For a video interview with John Pellowe, click here in the interactive CX-E version of the magazine. If reading print, please visit juliusmedia.com to find this review.

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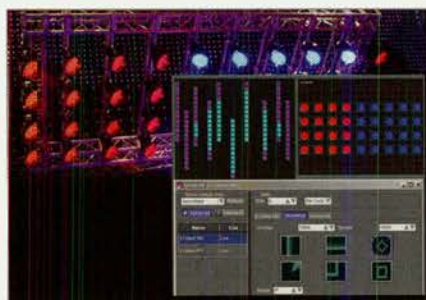
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100v

LINE SYSTEMS

part 3



Last month we talked about impedance and power in our 100v line systems. We took a look at how it's very important to correctly match loads with the amplifier otherwise we end up losing lots of power in the thin and very long cheap cables and our system sounds yuk. We also touched on trouble shooting and learned that an impedance meter and a Watts to Ohms table are the 100v Liney's best friend.

In the valve days all amplifiers had output transformers. This is because the voltages that the valves worked at (upwards of 250 to 500 volts) were much higher than those which the speakers worked at. So the transformers "stepped down" the voltage. PA amplifiers from the period had different tapings for 70v and 100v line outputs. These were output voltages lower than the valves used but still higher than those needed for 8 ohm speakers.

"70v" systems are extremely rare nowadays, although sometimes you come across very old installs which still contain 50 year old speakers originally designed for 70v line, with an impedance of around 600W each. These will draw too much power on a 100v line system and appear too loud. If they haven't been cooked already then you should still replace them if you find them.

In the '70s, transistors were on the scene and high power amps like the Crown DC300 heralded an era of direct coupled electronics which no longer needed a transformer on the output side. These amps were designed to drive 8 ohm speakers directly, an age generally referred to as "current ampli-

PAUL MATTHEWS
can wriggle into small
places and pull cables.
Then he can perform
a high wire audio act.

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fiers". If we needed to drive 100v line with them then we would add a big "step up" transformer to the output. "PA" amplifiers generally come with this big heavy beast already mounted inside. This made for a back breaking time for any PA tech in the '80s or '90s as most PA amps had TWO big transformers inside – the power Tx and the output Tx.

Many (particularly cheaper and heavier) PA amps today still use this method. On the back you commonly find a number of output terminals. The "4W" one is driven directly

from the electronics. The "70v" and "100v" ones are driven through the transformer. Modern examples include the Hills SVL AMIS series. Sometimes there may even be a removable link which enables you to disconnect the transformer and use the amp purely for conventional 8 ohm loads only.

Occasionally (particularly in large older outdoor venues such as sporting fields) you'll find a rack of high power conventional amps coupled to separate large 100v line transformers mounted in the same rack. They're probably driving high powered conventional speakers in the stands, each with a similar step down transformer bolted on to the back. This method has fallen out of favour now because the power involved in these types of venue systems has grown to the stage where it's cheaper to just locate the amps closer to the speakers and / or use very thick cables rather than muck about with very big 100v line transformers (in many cases the voltages involved at 8 ohm in these high power systems is approaching 100v anyway!).



Nowadays you'll also come across 100v line PA amps without an output transformer. These are typically higher power (300~500w) and the electronics is designed to drive a 100v line directly. Apart from the obvious weight saving the other difference will be the lack of any "8 ohm" terminals on the back of these amps. They are designed exclusively to drive 100v lines and cannot be used to drive conventional speakers at all. A popular example on the market are the Inter M "PAM" series.

The new boys in town are of course the fully digital Class "D" designs. No transformers, switchmode power supplies, very light, very small, very efficient. And depending on how much you are prepared to pay – fairly reliable. These amps will adapt to whatever load is connected to them and are virtually impossible to blow up.

As we found out last issue, some designers now simply specify a conventional high power 1.2kW Lab Gruppen or Powersoft (such as we would otherwise find in any touring rack) to drive a 100v line directly. In bridged mode, even a 2 channel "500w into 8 ohms" unit will happily work this way, driving around 1200w into a 100v line with no transformer needed.

While we're talking amplifiers it's important to consider protection schemes. Different amplifiers react to faults in different ways but generally you've either got "fused" or "current limited" amp designs out there. Fused amps will have a pair of fairly hefty fuses on the back, typically 10 to 15A for a 250w amp. A short circuit, overload or severe impedance mismatch will simply blow the fuses and bring the system to it's knees very quickly. Observing glass fuses which have blown under overload (which can generally reveal how fast the fuse blew) can very quickly tell you what's wrong with a system. The Australian Monitor AMIS range is a popular example of "fused" PA amps.

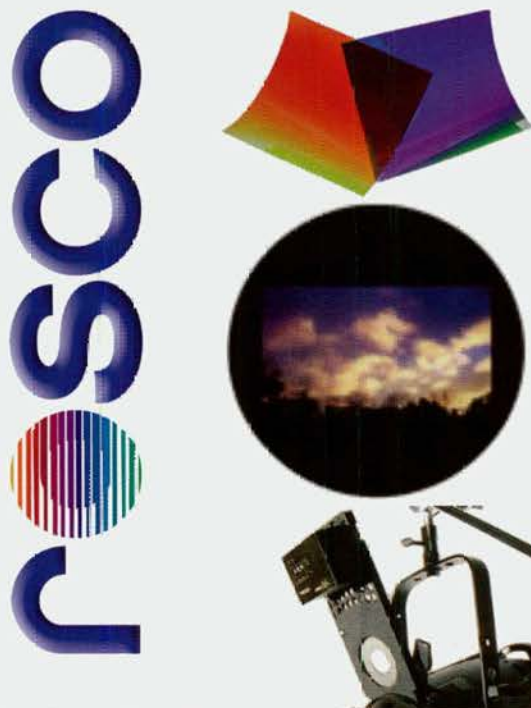
Current limited amps however don't "blow up" when presented with an overload. They just keep working but progressively reduce their power output to a level considered safe to prevent the amp from overheating or blowing up when a fault condition arises. While this can have advantages by effectively "keeping the show on the road" it can also result in very nasty faults remaining present in an install for a long time before they are eventually "found".

Often with "current limited" amps a customer can get very confused when a seemingly simple service call to fix one fault becomes a major and expensive effort to find and repair multiple faults – some of which may have been present in a system for many years and which once found, must then be fixed if a system is to be repaired under any sort of warranty. This can happen even if the system still appears to work "OK" according to the customer with some of the faults still in there. A PA contractor that knowingly leaves faults in a system after "repairing" it is just asking to be sent to "call back hell". The Inter M "PAM" series are all "current limited" amps.

Next time we'll take a look at cabling systems and "zoning".

WATTS AND OHMS

There's more to this than we first thought ... the world of install is all about heavy duty usage!



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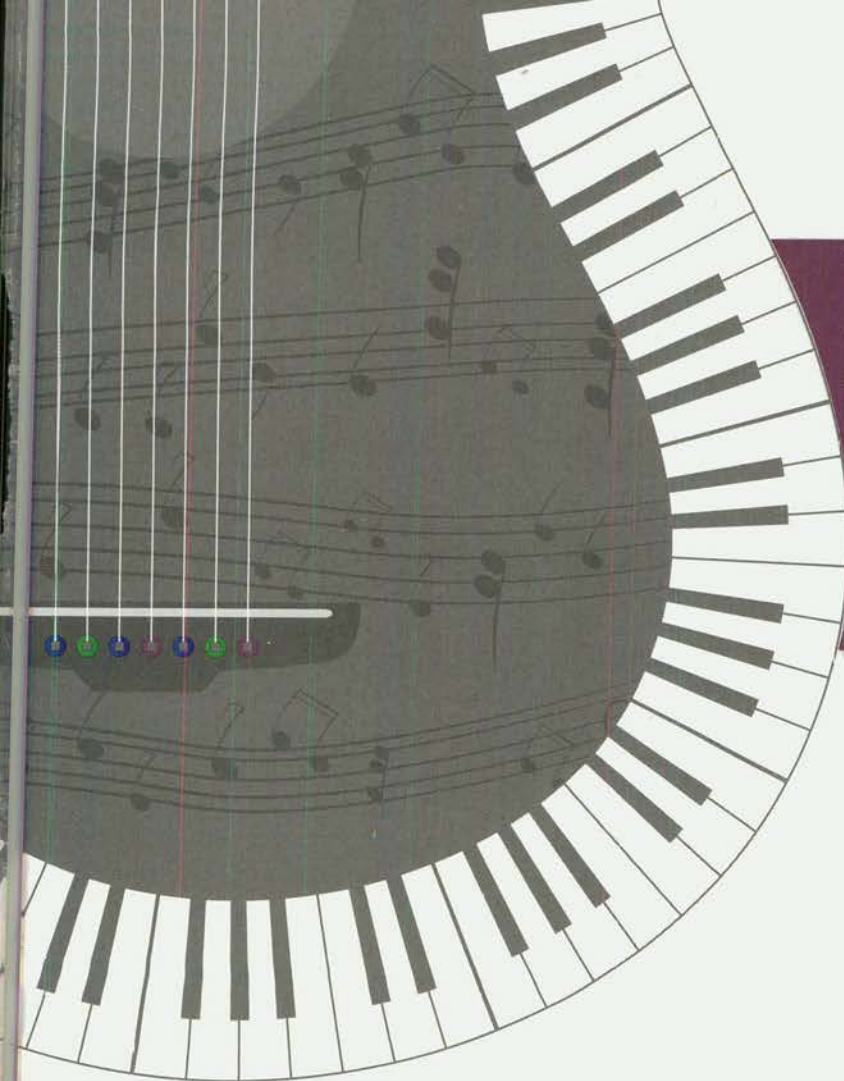
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AND PLEASE, IF IT'S GOING TO BE ALL ACOUSTIC GUITARS, THEN IT CAN'T BE FOUR GUYS ALL PLAYING THE SAME RHYTHM, THE SAME CHORDS, IN THE SAME POSITIONS, ALL AT THE SAME TIME.

all around the world play every night with a system like this; no-one mixes, the levels are set before they start and maybe tweaked as they go, perhaps with some useful input from friends in the audience.

There's nothing wrong with a set-and-forget system. But you've got to **set** it before you **forget** it, not the other way round!

And please, if it's going to be all acoustic guitars, then it can't be four guys all playing the same rhythm, the same chords, in the same positions, all at the same time. Someone has to play higher, or lower, maybe some fills, there's got to be some light and shade in the sound so each guitar has its own space in the mix. Otherwise it sounds so dull.

Did any of the 150 people in the audience notice, though? Yeah, sure! (That's a bit of sarcasm there, BTW)

The truly sad part was that no-one in the audience, apart from us, seemed to notice or care that they couldn't hear the words. The reason only struck me a few days later – the audience knew the words to every song already. It didn't matter that they couldn't hear them, since the songs were already playing in their heads from memory!

At the end we drifted off home having learnt nothing apart from the obvious; if you play stuff that everybody knows, then it doesn't matter how bad it sounds, they will love it.

Still, I'm told that next week there's a band on called Rammstein Unplugged. Now that's more like it!

Just about every guitarist that I've ever worked with who plays an acoustic turns the volume on his guitar down to about halfway while you're doing the soundcheck. So you assume that's the level he likes to run it at, and you start from there. Then, when you've got it sounding just right out front, and just the sweet blend of vocal and guitar in the monitors, you go off for something to eat, safe in the knowledge that it's all set to go from song one.

An hour later you come back, happily full of hamburger, settle in behind the console, the band's manager grabs a mic and announces *'Ladies and Gentlemen – you asked for it and here they are – the Epileptic Hammer Position...Unplugged!'*

Then Tarquin and his mates wander onstage, promptly turn their acoustics up to 11, there's speaker-shredding feedback all over the joint, and the clean mix you slaved over at the soundcheck turns to crap in a heartbeat.

Sure it doesn't happen every time...but it happens!

But I digress. As I walked from the car park

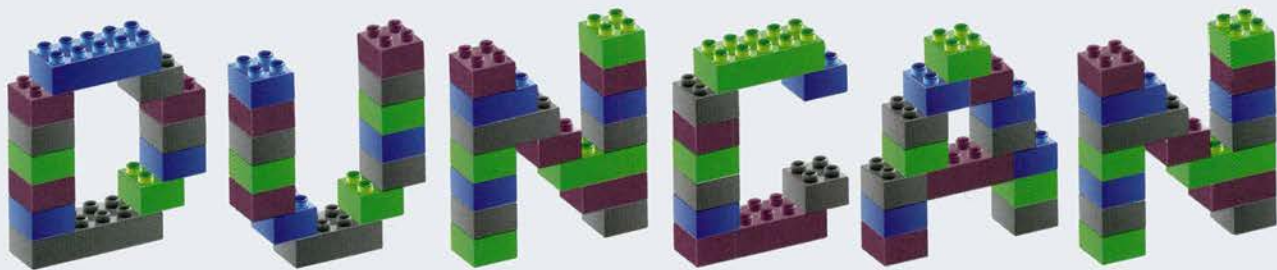
to the club, I could hear the muffled sounds of music playing. As I got closer it got a bit louder, and as I walked through the door of the club into the entertainment lounge I saw a roomful of people sitting there listening to four guys strumming their hearts out against the same muffled vocals that I heard outside.

It wasn't a bad system – a couple of 15" and horn RCF powered boxes, mixed off the stage. Your classic set-and-forget system.

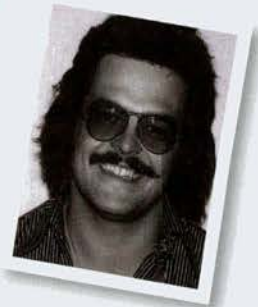
One of the hardest things to get right in small systems is the balance of instruments to vocals (In true guitarist style I'm including drums as instruments under sufferance!). Their position in the mix should vary in inverse proportion to their loudness on stage.

You have to decide what the key element of the music is that you want to bring to the front; in most cases it's the vocals, so anything else has to be at a lesser level. There just isn't the power to have everything in the mix and still be able to hear the vocals.

Especially in set-and-forget systems. Bands



FRY



Unplugged? Unthinkable

The system should be as big as possible – unless I'm lugging it!

© 2011 Duncan Fry



ongtime readers of this column will probably remember that I have an intermittent gig mixing and playing with a group of like-minded wastrels called the Amazing Harris Tweed Band. At a fairly loose rehearsal/ beer-a-thon the other Sunday, there was a lot of soul searching about what audiences want to hear these days.

Sometimes I think that the people who want to hear songs from the 60s have either dropped off the twig or are dribbling away happily in the old folks' home. Either way it's a safe bet they won't be paying 10 bucks a head and jumping in the Mosh Pit all night.

Other times I think it's time to start doing nothing later than 80s stuff in the band, because there will be no-one at the gig who remembers anything earlier.

Anyway, a couple of days after the rehearsal, the gravelly voice of LL the drummer awoke me from my afternoon nap.

"Wake up you old fart!" he rasped down the phone line. "You remember what we were talking about last Sunday?"

"What – you mean whether the audience would mind if we played while hanging onto our walking frames?"

"No ya bloody idiot; the songlist." I could hear him put his hand over the phone and say to someone in a hoarse stage whisper.

"Hey I can hear you, you know" I said

Yeah well there's a band on around the corner on Saturday – they're playing all Beatles stuff, but unplugged. Let's all go and see 'em and then maybe we can get some ideas. See you there at 8, OK?"

And with a cough that seemed to come from his ankles and must surely have left his lungs flapping around on the floor, he was gone.

Unplugged gigs. I hate them. I always think the band is trying to do it on the cheap,

Bass, and what's the drummer supposed to do? Play a tambourine all night? Or worse still, shudder, some bongos? Oh the horror. And this was going to be an unplugged band playing some Beatles songs. Surely a lot of their songs rely on the jangly electric guitars of the early stuff, and the more experimental over-driven guitars of the later stuff

Anyway, to tell the truth, I'm a bit over the Beatles. Sure, I liked them back in '64 when they started becoming famous; I even queued up at 5.30 one Saturday morning to get tickets to the preview of *A Hard Day's Night*, but after 40-odd years

"SHOULDA KNOWN NOT TO RING him straight after lunch. Would've been better to go round there and poke him with a sharp stick first to wake him up!"

because they (or their management) are too tight-arsed to pay for a decent system. What's more, it's not unplugged anyway. All it means is no electric guitars and no drums. It still needs to be run through a system, but theoretically it doesn't need to be as big as one as you'd need for a fully amplified band. And no drums? Where's the excitement in that? Where's the pounding beat that's supposed to make the audience lose their inhibitions, leap on to the dance floor and start gettin' jiggy with it? All you've got is acoustic guitars strumming away, perhaps a bit of

I'm ready to move on.

But, on the other hand, I do like to go and see other bands, especially if I don't have to load in or out and can just sit there like a regular punter.

So to be sociable and not a cranky old grogan, when Saturday rolled around I decided to fire up the Capri (turbo, mate) and headed on down there.

On the way I mused over unplugged/acoustic gigs that I had done in the past.

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