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## PEOPLE

### MICHAEL CHUGG

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LIVE

# Macca Gets Back!

Industry Legend LeRoy Bennett lights Sir Paul McCartney's 'Got Back' tour

## News

- / Geelong Arts Centre Venue Upgrade
- / GTX 2024
- / Trinity College's new \$24m theatre project
- / Lands to Distribute Electro-Voice and Dynacord in NZ
- / Sennheiser at Southern Cross

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- / Brian Coleman: The Gaffa Tapes

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From Sun Rays to Sound Waves - 3 businesses going green

Melbourne's Regent Theatre, and GCCEC up the 'AV' ante

Holoplot X1 makes a musical debut, Julius travels back in time, & Monash goes spatial

## FIFTY LINE

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Cover Photo – Sir Paul McCartney's 'Got Back' Tour.

Contents Photo – Atlantic Theatre Company's Buena Vista Social Club. Photo Credit: Ahron R. Foster

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# HOW TO GET OFF THE ISLAND AND FIND A NEW WORLD (MARKET)

The downside of island life is that your perspective on the rest of the world is limited to what the tide delivers. As for over the horizon, it is a world of mystery. The industry of public entertainment tech is like a collection of islands, largely unconnected, yet in the same ecosystem and dealing with the same tidal influences. Not to mention the occasional typhoon, and not even reliable weather reports. Uncertainty about the future is as normal as change is guaranteed. There are no guarantees of permanence. Each year companies big and small go out with the tide. There is a way to make life more certain and get the resources that are normally out of reach.

The bridge between castaway and community is industry associations. There are a few niche associations able to act as the bridge and voice to governments and media, promoting the collective interests of their members. Not to mention being a resource repository. Much of their work is unacknowledged and, in many cases, unknown by the industry at large. Without them and their efforts, many of the basic benefits the industry experiences would not exist.

The common denominator between all these associations is they are the bridge to governments and other influential entities that represent common interests. Governments generally don't talk to individuals. They consult with industry peak bodies and pressure groups. As a production company, you won't get anywhere complaining to the government about selling off your wireless spectrum. However, they will listen to an industry peak body representing your interests. And as far as maintaining a peak body to be there when you need help? Like all created beneficial entities,

ignore them and they will go away.

ACETA is an example of an industry peak body run by volunteers and supported by a membership within the entertainment technology community. This includes production companies, wholesalers, content creators, manufacturers, educators, and a host of large and small enterprises from audio, lighting, rigging, staging and pretty much everything in staging or producing a show of any kind.

The benefits of joining an association are many. In the case of ACETA, benefits such as industry wide free wireless spectrum access, appropriate electrical safety standards, sensible venue laws, entertainment industry rigging standards, IP protection and a host of seemingly uncontroversial but essential foundations we now all take for granted. One big benefit of association membership is probity and standards accreditation. Your business, by being recognised and promoted as a member of a peak body is instantly taken seriously by customers and contractors. The

smaller the business, the more important it is to stand out and be considered someone safe to do business with, especially if your customer is new to the market or territory.

Spending a little time and money on your segment association is the best investment you can make in a challenging market. In these times of change and transition, there is no time like the present. Find your segment association. And if you are into entertainment tech, look over the horizon and check out ACETA.



[www.aceta.org.au](http://www.aceta.org.au)



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## Geelong Arts Centre adds Claypaky Sinfonya Profile 600s in Venue Upgrade

A \$140 million redevelopment program by Victoria's state government has transformed the Geelong Arts Centre into Australia's largest dedicated regional arts centre, boasting two new theatres alongside new bars and event spaces. The upgrade includes the installation of 28 Claypaky Sinfonya Profile 600s, unique, low-noise LED-based fixtures conceived and developed exclusively for the theatre market. The fixtures are stylish and packed with technology, offering endless possibilities for theatre designers to utilise a wide variety of features specifically developed for theatrical productions.

According to Ben Van Dillen, Technical Operations Manager for the venue; "We needed a fixture that had shutters and an excellent colour profile. I also wanted a moving light that was going to match our LED profiles, something that we could use not just as a theatre light but also as a rock 'n roll-style light. It was important to have automated fixtures for

shows that come in for only a day, which you need to turn around really quickly."

Claypaky distributor Show Technology's Keith Bradshaw visited the crew at Geelong Arts Centre to conduct a shootout of various fixtures after receiving Van Dillen's specs. Van Dillen opted for the Sinfonyas, which

were installed in The Play House, a 764-seat proscenium theatre for live shows, major concerts, dance performances and corporate launches. He calls the fixtures "amazing" and says they have quickly become favourites among the touring lighting designers who have used them.



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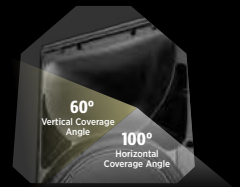
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rcf.it/art9

Ian Scott was delighted to get his hands on the Sinfonyas while doing the lighting design for Jersey Boys for the Geelong Lyric Theatre Company. "The multi-colour emitter light engine is great; the ability to get saturated colours at high intensity helps punch through additive colour fixtures, unlike traditional CMY subtractive fixtures," he notes. "The gobo selection is great for a wide variety of use cases, and the 5 to 60° zoom range is all that I ask for in a fixture. They were great in The Play House, and I'm sure they will perform just as well in smaller and larger venues."

Jason Bouvaird was also impressed by the Sinfonyas after using them on a production of Priscilla, Queen of the Desert.

**"I found the Claypaky Sinfonyas to be an incredible moving light spot," he says. "The brightness out of these lights at nine metres is incredible. They are quick to respond to all movements on stage, and the gobos are an excellent selection. The shutter framing on the lights is a huge bonus feature as well. I think these lights are the next generation workhorse in a moving light fleet."**





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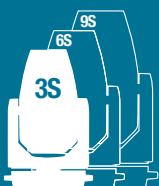
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# GTX 2024



**Part tradeshow, part industry networking event, the 2024 Group Technologies Expo will fuse a plethora of audio technology demonstrations with the local inauguration of globally acclaimed brands, including Sound Devices, Fourier Audio, and ISOVOX. Held at Group Technologies Melbourne HQ in Pascoe Vale, the event runs 10:30 am to 7 pm on Wednesday 21 Feb.**

GTX will feature product launches from leading Pro Audio manufacturers, including DiGiCo's long-awaited Quantum 852 flagship console, and the mighty P18, a new 18-inch point source loudspeaker system from NEXO. The recently supercharged Retail arm of GT will also be showcasing an array of new gear, including Austrian Audio's MiCreator mic range, a

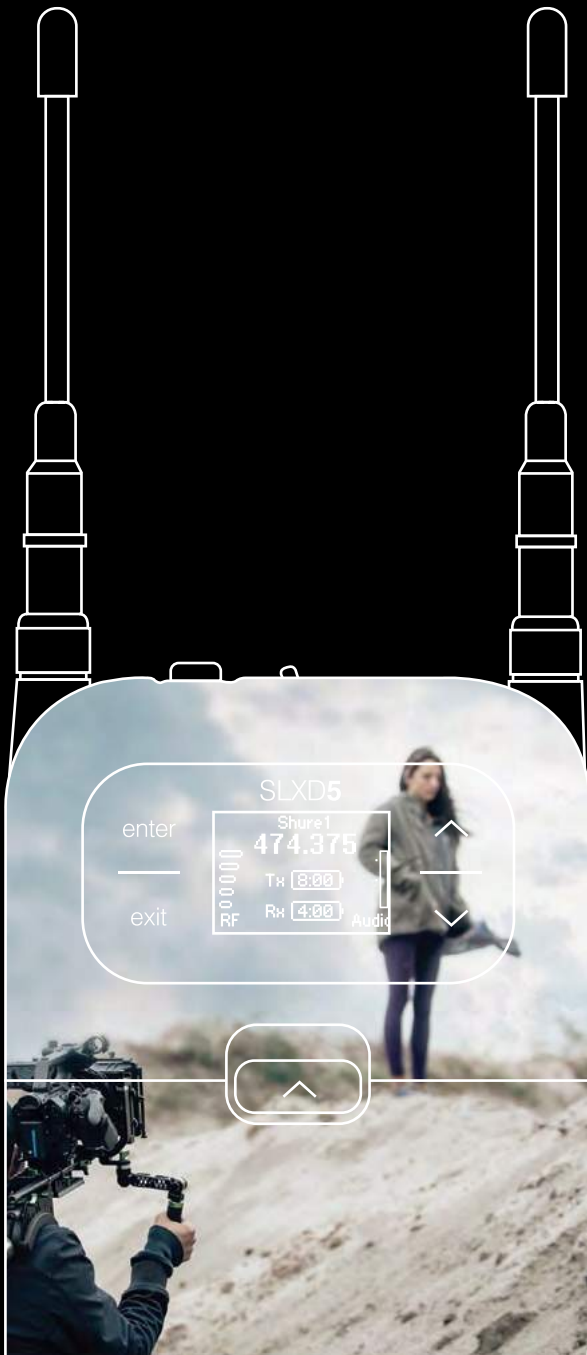
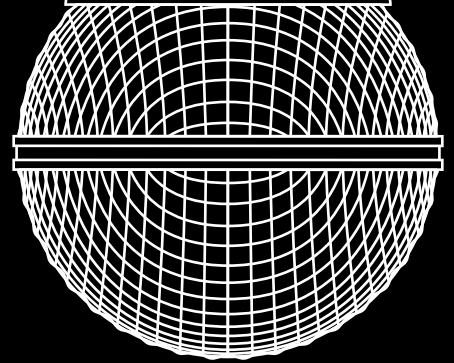
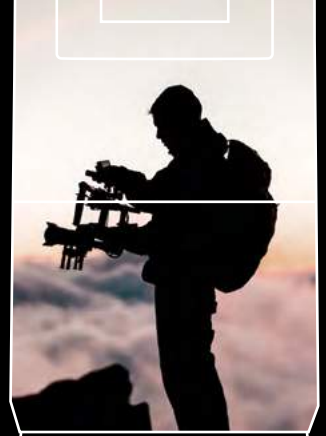
collection of premium portable vocal booth systems from ISOVOX, as well as the entire Elektron line up. World leading Sound Devices RF expert Gary Trenda will also be carrying out training seminars throughout the day.

With over 12 international special guests from the likes of DiGiCo, RCF, NEXO, Cordial, Austrian Audio, NST Audio, PSI Audio and

Sound Devices, GTX is an immense offering of cutting-edge technology combined with GT's famous hospitality. This is an event not to be missed.

**To register for attendance, please email [gtx@grouptechnologies.com.au](mailto:gtx@grouptechnologies.com.au) as places are limited.**





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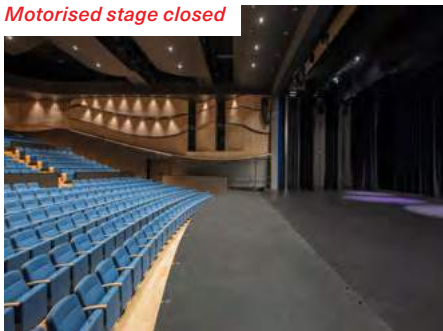
# The P.A. People deliver venue engineering for new \$24m theatre project for Trinity College, SA



Motorised stage open



Motorised stage closed



Motorised stage can provide extra seating



The new Marnkutyi Parirna Theatre at Trinity College Gawler was completed in December 2023. Marnkutyi Parirna is the local Kaurna language name for Three Rivers, the name reflecting the localised setting acknowledging the North Para River, South Para River, and Gawler River, with the connecting point known as the Three Rivers site. The \$24 million, 14 month project included the construction of a 520 seat auditorium with raked seating, the acoustic treatment of the auditorium walls, and a stage performance area with a fly tower.

The venue also comprises a multi-purpose foyer, front of house and gallery spaces, recording studio, green room, control room, staff offices, multimedia sound production spaces, sound recording room and a rehearsal room, all designed with suitable acoustic treatment.

Head of Venue Engineering for The P.A. People, Peter Grisard, was delighted that The P.A. People could assist in delivering an outstanding project outcome. "We engaged with Mossop Constructions from the outset to design and deliver the key staging elements including motorised hoisting, massive hinged acoustic panels, motorised overhead acoustic

reflectors, and a motorised stage platform. The functionality of the staging systems and equipment allows the venue to be quickly transformed into either a concert hall or into a theatre. A high-quality outcome for which the College, the builder and the theatre consultants should be congratulated."

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Project lead builder, Mossop Construction and Interiors describe the project facilities as outstanding learning spaces, accommodating various educational and community uses such as music, drama, dance, oratory performances, assemblies, information events, social functions, meetings and exhibitions. Mossop describes itself as a proud South Australian family business, employing 160+ local and regional based staff, and proudly provides jobs to hundreds more local subcontractors and suppliers.

[papeople.com.au](http://papeople.com.au)

[mossop.com.au](http://mossop.com.au)

[trinity.sa.edu.au](http://trinity.sa.edu.au)



# Jands Becomes a Distribution Partner for Electro-Voice and Dynacord in New Zealand

Effective as of Jan 1 2024, Jands announced a new primary distribution agreement with Bosch Security and Safety Systems. This strategic partnership will see Jands provide sales, design and technical support for Electro-Voice and Dynacord's range of installation-focused products in New Zealand.



Kit Watson, General Manager of Jands New Zealand

"The expansion of our partnership further enables Jands New Zealand customers to deliver comprehensive solutions across corporate, government, and education sectors. This move is a testament to the success and satisfaction these brands have already brought to our Australian customers, and we're excited to continue this success in New Zealand," commented Phil Muffet, CEO and Managing Director of Jands.

Kit Watson, General Manager of Jands New Zealand, added: "Much like Jands, Dynacord

and Electro-Voice have strong histories of providing trusted audio solutions. This distribution partnership reinforces our commitment to listening and supplying our New Zealand customers with globally trusted technologies backed by leading, local support. We are excited to bring this extensive range of installation-focused products to our nationwide dealer network."

For more information about Jands distributed brands available to the New Zealand market, please visit: <https://www.jands.co.nz/>

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# SENNHEISER

## AT SOUTHERN CROSS



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### THE CLIENT

The public transport hub of Melbourne, Australia: Southern Cross Station serves over 1.2 million people every week and is Victoria's primary metropolitan, regional and airport gateway.

### THE SITUATION

Mass communication and mass transit don't mix. At least, that was Southern Cross Station's experience. Melbourne's main train hub for regional rail (as well as a key metro rail hub) had a significant issue communicating with its customers. The regional rail platforms are up to 300m long and heaving with travellers during rush hour. Southern Cross Station's old paging solution was a very blunt instrument: there was no zoning. The whole station, all 16 platforms of it, got the same message.

InSight Systems is Southern Cross Station's managed services partner, so when Director of Technology, Myke Ireland, and his team were briefed on an improvement to the station's announcements capability, they were all ears.

"The officers wanted to walk up and down anywhere along a platform and make announcements to the patrons on that platform," describes Myke Ireland. "The problem is, Southern Cross Station is a natural

Faraday cage – where RF goes to die! Not only that, it's thrumming with high-voltage cables, and there's EMF everywhere – radio and TV stations – not to mention thousands of people soaking up RF. But the sort of wireless system the station was after would need to be exceptionally robust: interference-free, and work every time someone picked up a mic."

### THE RESULTS

Next-level antenna.

Sennheiser worked with InSight Systems to assist in mapping the four regional train platforms to model the RF environment and help specify the type and quantity of antennas required. As expected, this project would require the big gun, the A5000-CP – the more standard half/quarter-length 'paddle' antennas, normally sufficient in most other contexts, weren't up to the extreme conditions. The software modelling recommended eight of these helical antennas from Sennheiser for each platform. The antennas are placed at the PIDS (public information display structure) positions. They're highly directional, which is perfect for the job – each platform is its own zone, and intermodulation between platforms would be bad news.

InSight Systems was aware that the 'black dome' form factor of the A5000-CP was hard

to conceal but performance would need to trump any aesthetic concerns. As it happened a vibrant Reddit thread speculated on the purpose of the A5000-CP units, which were installed during the peak COVID period. Some Redditors suspected the antennas had the capacity to scan commuters' phones for their vaccine status and, maybe, ray guns would be installed next, to quickly dispatch troublemakers.

With this, InSight Systems selected wireless microphone systems from Sennheiser's G4 range, including ew300 handheld systems, powered antenna combiners, and receivers. No ray guns were specified (but they would say that, though, right?)

### KEEPING THE SYSTEM ON TRACK

InSight Systems is using Sennheiser's Wireless Systems Manager (WSM). WSM is Sennheiser's professional software solution for remotely monitoring and controlling wireless systems. It displays the entire data of all controlled devices on the network at Southern Cross Station. It shows all status information and makes setting adjustments, including firmware updates for one or multiple devices, very easy. For example, if there's a significant change in the RF environment – perhaps a new

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TECHNOLOGY



TV station pops up or an RF-heavy boat moors nearby – InSight Systems can remotely scan and re-stack the RF of the receivers.

“The Sennheiser aspects of this job were a breeze,” reflects Myke Ireland. “It was so easy to get all the frequencies we wanted and antennas we needed... Sennheiser made the RF design simple.”

George Sotiriadis, Sales Manager Business Communications VIC/TAS at Sennheiser adds, “When Insight Systems contacted me about this project, naturally I was excited because of the long history and prominence of the Southern Cross Train Station in Melbourne, and because I knew Sennheiser would be able to provide a robust solution that simply and effectively fitted the station’s needs and unique environment. Working with Myke and the Insight team in the design phase was a pleasure, and it’s gratifying to know that everyone involved with this project is so thrilled with the end result.”

## INFORMATION TECHNOLOGY

Southern Cross Station’s wireless audio upgrade has been highly successful. For commuters, timely and contextual information is key. Previously, the scatter-gun paging approach caused frustration, not only for patrons, but for station staff who were stretched thin as they fielded individual enquiries. Now, staff are free to walk the full length of the platforms and make calls specific to each one at a frequency that works best for the pace and schedule of that platform.

Maybe mass communication and mass transport can mix.

InSight Systems: [insightsystems.com.au](https://insightsystems.com.au)



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## Elation KL CYC

Elation's KL CYC is an LED cyc light and footlight fixture with RGBMA colour system using a full-spectrum, high CRI engine. With top and bottom barndoors for precise control over light output, the magnetic alignment connects multiple units for precise linear runs. KL CYC includes EdgeLight safety feature, allowing users to designate a safety light in red or blue whenever desired, even if DMX is lost. Fanless operation is designed for noise-sensitive environments.

**Australia:** ULA Group [ulagroup.com](http://ulagroup.com) 1300 852 476

**New Zealand:** ULA Group [ulagroup.com](http://ulagroup.com) 09 218 6532

## Elation Proteus Odeon

Elation's Proteus Odeon is an IP66-rated framing profile moving head with completely variable CRI LED engine. Variable TruTone system is adjustable from CRI 70 to 93, blending smoothly with no switching or stepping. Outputs up to 30,000 lumens from a 580W variable CRI bright-white LED engine. Zoom range from 5.5° to 50°. CMY colour mixing system also has a 5-slot colour wheel, including UV filter. FX include 13 rotating and 7 fixed glass gobos across three gobo wheels, overlapping 4-facet or linear rotating prism and a 360° bi-directional animation wheel. Indexable 4-blade framing system with full blackout shutter cuts allow full control of the beam shape and projection at any angle.

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**New Zealand:** ULA Group

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# NEW GEAR

## Sennheiser EW-DX Microphone System

EW-DX EM 2 Dante is a half-rack (9.5") two-channel receiver. The receivers have a switching bandwidth of up to 88 MHz, allowing up to 146 channels in standard mode and up to 293 in link density mode. CHG 70N-C is a network charger that can be cascaded (up to 5 x network charger units). The AWM wall-mount antenna is an active directional antenna for use with Evolution Wireless Digital microphone systems. Variants include: AWM UHF I (470-694 MHz); AWM UHF II (823-1075 MHz); and AWM 1G8 (1785-1805 MHz). Sennheiser Control Cockpit, Wireless Systems Manager and Smart Assist app have all been updated to support the new range.

**Australia and New Zealand:** Sennheiser [sennheiser.com](http://sennheiser.com)



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Microflex Wireless neXt 2 (MXW neXt 2) is Shure's new meeting room audio solution. This is built around the MXW neXt 2's base station, which incorporates APT/charger and onboard DSP. Audio I/O connections include USB, Dante networked audio, and analog audio. Shure Audio Encryption uses a AES-256 algorithm. Wireless microphone options include MXW1X Bodypack, MXW2X Handheld, or MXW6X Boundary mics.

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### SpinetiX iBX410

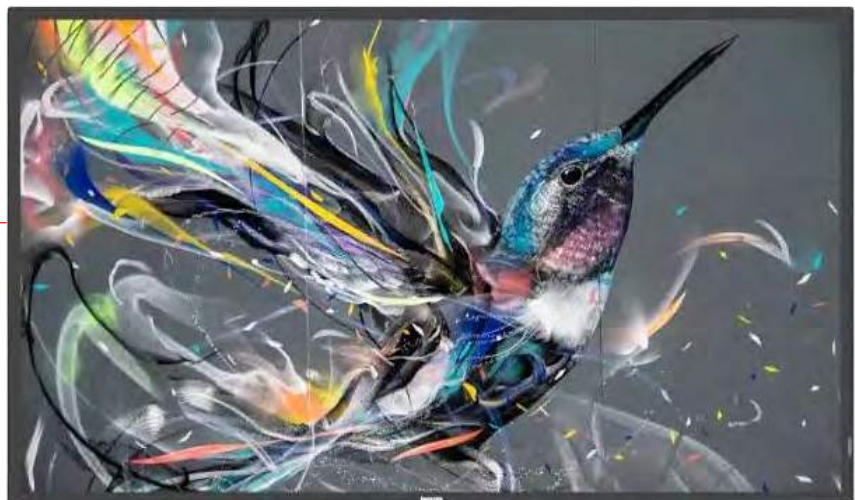
SpinetiX's iBX410 is their newest digital signage player. Based on Intel's latest Atom processor, it delivers 4K visuals at 60 FPS. Powered by DSOS – the SpinetiX purpose-built signage OS – the unit easily accesses SpinetiX's ARYA CMS and free Discovery Plan. Scales with SpinetiX ARYA Enterprise plans and Elementi software.

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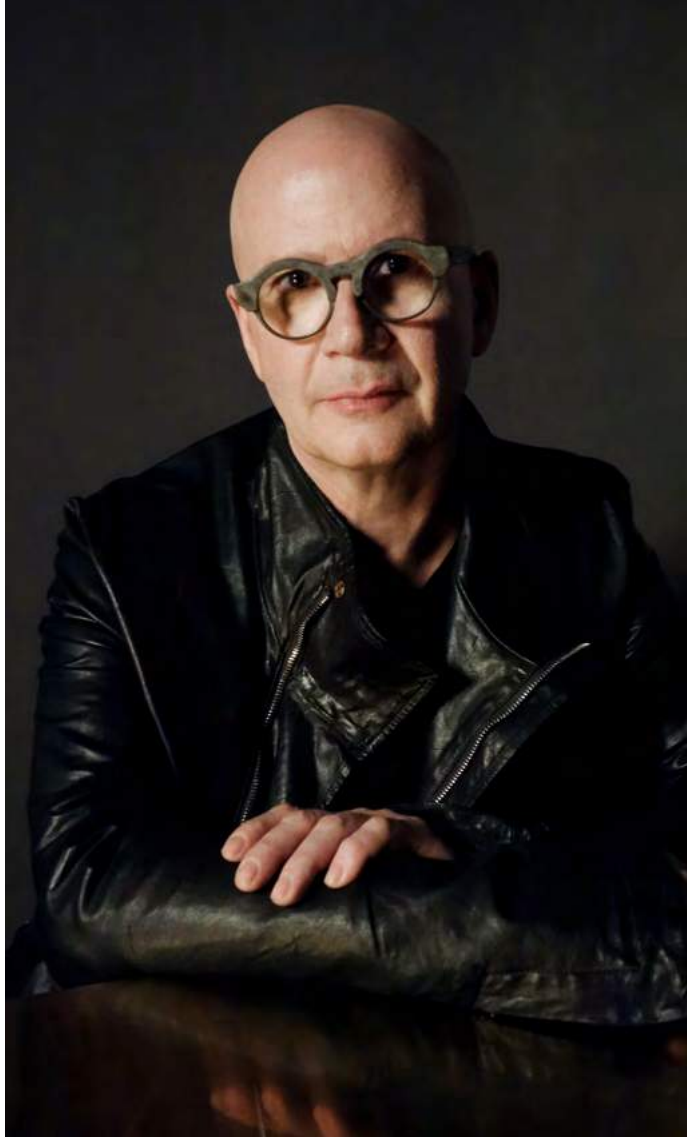
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## The Legendary *LeRoy Bennett* Gets Back with Sir Paul McCartney

Everyone's had that "wow" moment.

A dazzling set piece, a single heartfelt song, spectacular lighting effects, or the whole entire show - anyone who has ever experienced live entertainment has had at least one of these moments, no matter what side of the stage you were on.

My first was the weirdest and probably most memorable - no live performer, no stage lights, but it stuck with me:

Toronto, Canada, 1980-something. The planetarium had just installed a brand new 16-speaker surround sound system and a 4-metre long, state-of-the-art electro-mechanical Zeiss-Jean Planetarium Projector Type 23/6. Now showing was *Laser Floyd: Dark Side of the Moon*. One night, mum packed us up and drove the two hours to the city to see it. I was only a handful of years old, totally new to technology, scared of the dark and probably the only person there with their mother and completely stone sober.

As the room lights dimmed, I felt a zing of excitement. Heartbeat...clock ticking...cash register...voices...helicopter...the cacophonous intro of *Speak To Me* was creeping out of the surround sound system, taunting me from every direction. Suddenly, the monster projector rose to life in the centre of the room like a giant robotic space-ant. I was terrified - but in a thrilling kind of way. Breathe. Yes, suddenly I could. Images began scribbling across the domed ceiling and they were mesmerising. I knew the music so well, I had been in this theatre before, but I had never experienced either the way I did that night. Visually. Physically. Emotionally. I was blown away.


Only recently, Australian audiences got their chance to be blown away by a spectacular production while witnessing an original Beatle play *The Beatles*. Paul McCartney's 'Got Back' tour, according to the *Herald Sun*, "...combines epic and influential pop and rock, and state-of-the-art production with every trick, treat, bell, whistle and sky rocket." McCartney's music - from *The Beatles*, to *Wings*, to his solo work - now spans across three generations of music-loving concert goers who all got to feel that moment together.

Social media feeds were jammed with resonating moments - experiences needing to be captured or shared with friends and family who couldn't be there each night of the performance. Audience members smiling, hugging, swaying and singing. Snippets of the powerful horn section visible on the LED screens, lasers darting across the audience, an impressive array of lights sweeping across the stage and stadium, pyrotechnics and even some calm and simply beautiful moments featuring close-ups of Paul on the screens, his expression in song drawing each person into their own private moment with the artist. It was all very well-crafted and visually beautiful. What you were hearing seemed intrinsically connected with what was happening on stage around the music. And not just in a technically precise timecode sort of way. It just...fit.

Compressing 60 years' worth of music into a three hour performance takes more than stamina and decisive song selecting. From a production design perspective, sensitivity to each genre and the era it represents has to be taken into account. Multi-award winning live concert production, set and lighting designer LeRoy Bennett describes it in context: "The Beatles explored and experimented with all genres and created timeless music...Paul has written songs that have a lot of emotion and soul. His music is thought provoking and melodically so memorable. My job is to represent artists, who they are and the story they are telling. Paul's music is so diverse, I have to portray a musical history in an emotional, visual way." Listing the artist as one of his favourites, it's not surprising that Bennett has been Paul McCartney's production and lighting designer for 22 years, and the only artist he actually tours with.

***But Bennett's accolades extend far beyond the 'Got Back' tour, or even the 22 years prior.***

At the same time laser light shows were expanding this kid's brain to accept live entertainment as more than a musician performing with a few bright lights illuminating



"LeRoy Bennett claims he 'designs concert tours' for a living. I think he actually designs 'WOW' moments."

them, a talented lighting technician was gaining some proper traction in the live entertainment industry.

Some might say it was simply a matter of being in the right place at the right time that would score LeRoy Bennett the role as Prince's production and lighting designer for the next 14 years, but this was at a point in recent history when LinkedIn didn't exist. Spraying your Insta feed with ultra-filtered, hash-tagged highlights and reels of your latest trade tricks weren't a thing. What you saw was what you got. Fortunately, someone saw what Bennett truly had, and would continue to deliver to audiences of the likes of Prince, Scorpions, Janet Jackson, David Bowie, Nine Inch Nails, Lady Gaga and of course, Sir Paul McCartney (to name only a select few). A rather impressive resume for the artist who has become one of live entertainment's most sought-after designers for the past 40 years and counting.

Touring presents its set of challenges, and one that is often considered from the onset of production design is what can be taken on the tour and what will have to be substituted at destination. Early in Bennett's career, touring and live production were still a wild frontier. He has had the fortune of witnessing and getting involved in that evolution. An artist can only express a visual to the level which the available technology will let them – so, in order to fix this 'problem', be a part of the solution.

"I like what tech can do for me, but I don't want to be aware of it," admits Bennett. "You have to give tech a human touch at times... balance an analogue feel in a digital world." Fortunately, the possibilities are limitless in today's technological landscape, so when ACME Lighting consulted LeRoy Bennett for the design of the new ACME Pulsar S2, it was a matter of designing something that could help transpose the ideas from the creative brain to

a stage setting, with flexibility and compatibility being the key focus.

"ACME are enthusiastic about development. They actually manufactured a lot of lights for other companies before they developed their own, resulting in reliable products and the capability to churn out quality product quite quickly which keep up with Western style of lights. They have the advantage of manufacturing in China, with the aesthetic and attention to detail typical of a Taiwanese manufacturing company. The mega plus is their price point on these fixtures, and their service is great." Bennett's appreciation for the ACME badge, quality and value is reinforced by the critical role their Pulsar S2s and Geminis in particular play in the production design.

The Australian leg of the 'Got Back' tour implements the same lighting design as the 2022 North American tour did, but all lighting fixtures except for the ACME Geminis, Pulsars



and follow spots, were swapped out. Notably, there were 480 ACME Pulsar S2 multi-capable fixtures in the rig, supplied out of the USA and supported locally by Australian ACME distributor ULA Group.

The Pulsar S2 is a moving light featuring dual-head design with powerful LED engines on the front and back of the fixture to produce extraordinary effects. The front of the fixture features 4 x 60W RGBW LEDs that generate powerful beams and rich colour. The Pulsar S2 features a zoom range of 2.5 to 28°, and precise individual pixel control, allowing for endless combinations of effects. Nine individual controllable 10W cool light LEDs are added to craft sharp 3.5° narrow beam angles.

The back of the fixtures head is equally distinctive with 24 zones comprised of 96 cool white LEDs, and nine zones with 10 RGB LEDs, creating eye-catching transitions and dynamic strobe effects in a wide 100° angle.

High-resolution electronic dimming 0 to 100% and smooth linear focus control allows for seamless transitions between sharp and soft themes.

The Pulsar S2 also boasts infinite pan and tilt capability, ensuring broad coverage, as well as its beautifully compact size and weight of only 11kg, allowing it to be installed virtually anywhere.

It's their incredible versatility and compact form factor – allowing them to be packed close together – which appealed to Bennett enough to employ a cool 480 of them for the 'Got Back' set.

Three grandMA3s – two running the show and one with the front-of-house tech to reset lights – are employed. An additional grandMA3 compact console controls the video component across the LED screens.

As technology advances and compacts, describing the hardware involved to



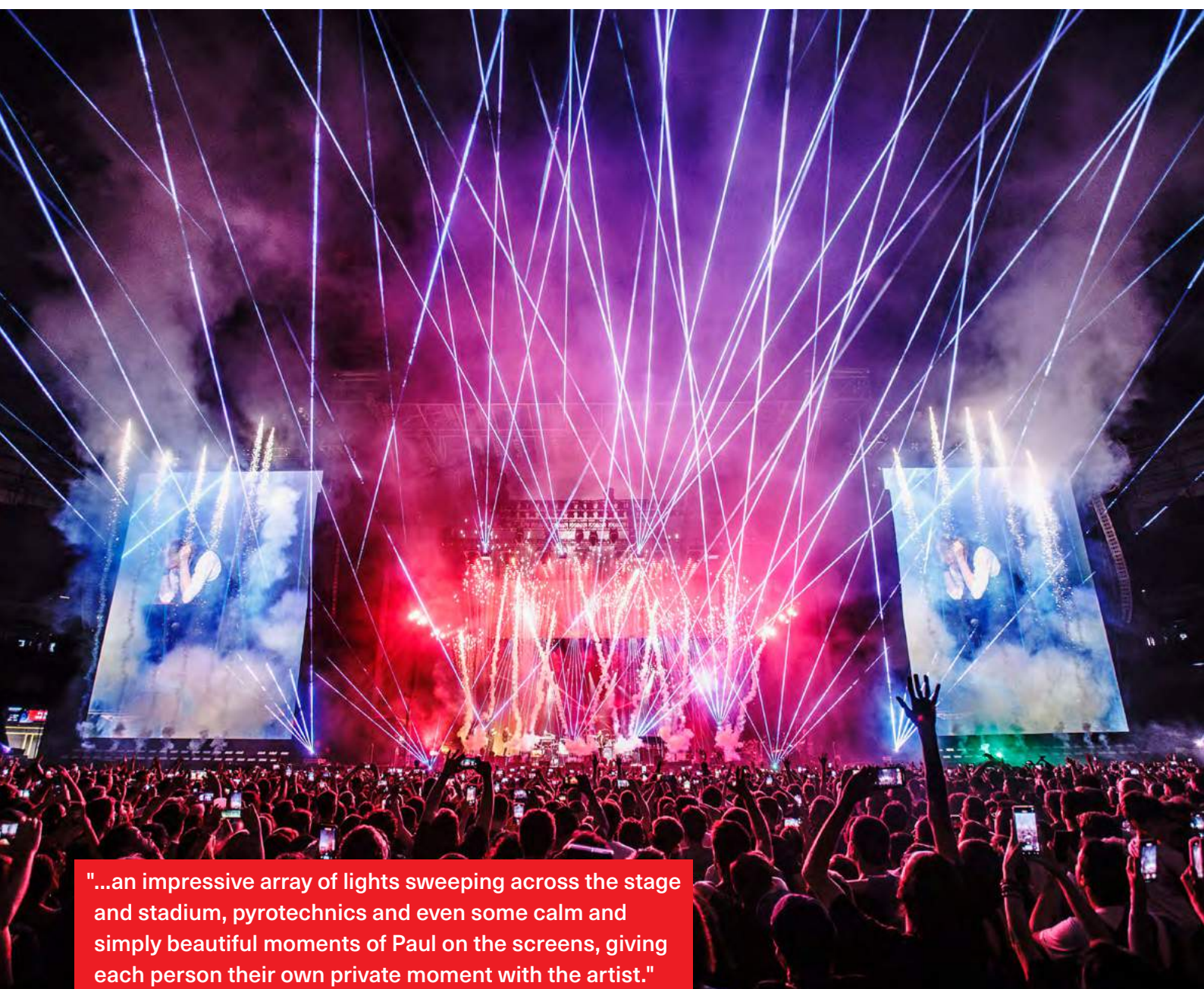
Pulsar S2



orchestrate such a large-scale production seems so disproportionate, but the power and the quality of the equipment technicians have access to in this day and age leaves the door open for infinite creative possibilities. Unfortunately for LeRoy Bennett and his team, they only had one 747 to pack all their creative tools in to, but they still managed to produce a show which added a new dimension to the music of Paul McCartney.

Audio Visual Imagineering, the designers responsible for the laser light show phenomenon of the 1980s, claimed they wanted to "create a musical experience" where the audience would be so immersed, "...they wouldn't know if they are seeing or hearing the music" (New York Times, c.1985). "A lot of times I think people hear music, but they don't understand why they enjoy it," Bennett imparts, highlighting his tactic of "evoking the emotion of music in a visual way."

Everyone came to the Paul McCartney concert, knowing all the songs.



"...an impressive array of lights sweeping across the stage and stadium, pyrotechnics and even some calm and simply beautiful moments of Paul on the screens, giving each person their own private moment with the artist."

No one had ever seen or felt them like that before.

LeRoy Bennett claims he "designs concert tours" for a living."

I think he actually designs "WOW" moments.

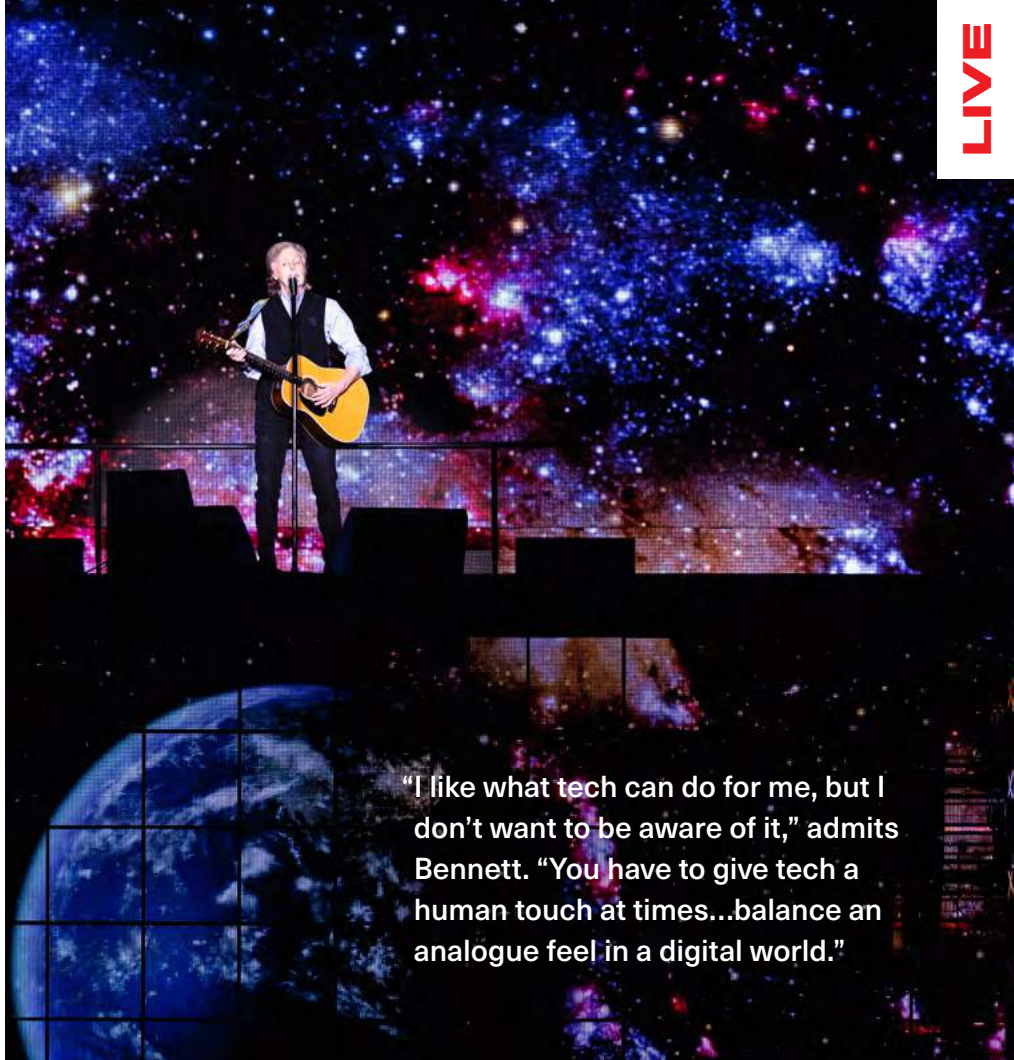
## Got Back Tour - Australian Leg

### Lighting Fixtures

- 80 x ACME Gemini
- 24 x ACME Pixeline IP Strobe 3
- 480 x ACME Pulsar S2
- 24 x ACME Geist Beam XA-500
- 32 x ACME Sunrise XA-1200
- 14 x Claypaky Scenius Profile
- 80 x Chauvet Professional Strike M
- 12 x PRG GC Bad Boy Spot
- 16 x 4-light DWE Molefay
- 24 x 8 Lite Mole ProCan

### Haze

- 12 x DF-50 Hazer
- 6 x High End Systems F-100
- 12 x RE2 Fan



"I like what tech can do for me, but I don't want to be aware of it," admits Bennett. "You have to give tech a human touch at times...balance an analogue feel in a digital world."

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## Recording Vocals?

# Use a Vocal Mic

**Of course, you could use a kick drum mic if you'd prefer, or frankly anything featuring a polar pattern. But please, whatever else you do this year, for the love of God, put a microphone in front of a singer if your primary aim is to record them. If 2023 was the year where at least one recording engineer I know questioned the validity of putting a mic on a vocal, what surprises are we in for in 2024? I dread to think.**

To clarify: the last album I mixed in 2023 arrived on my doorstep at the last minute, disguised originally as a mastering job. This, in hindsight, should have rung enough alarm bells inside my head to have me reconsidering the job.

The client had confused mixing with mastering, referring to one as the other throughout the process. But this was no big deal – just the classic behaviour of someone new to the recording game. It happens.

To help pay for the 500 Christmas presents Santa had billed to our household in the preceding weeks, I took the 'mastering' job on right before the Christmas break, knowing it to be a straightforward acoustic guitar-based, singer-songwriter album, featuring only two elements: vocals and acoustic guitar. All the songs for the album had been recorded in a home studio setting over a single session, featuring live vocals and guitar, with only occasional birds twittering in the background.

Presumably this meant the songs would be consistent from track to track, which indeed they were, to my great relief.

I downloaded the album, transferred all the files into my Pro Tools rig (v2023.9) and had an introductory listen to the first song, getting my head around the sounds emanating from the very basic four tracks of the recording as it played.

By the end of this first playback I was already confused. 'Which channel is the vocal mic on?' I wondered to myself.

So I listened through again...

'Pencil mic – left', 'Pencil mic – right', a mic labelled 'Central MS Rec', which was confusing indeed, and a fourth mic labelled as its so-called pair, but which clearly sounded very different to 'MS' – more like a distant room mic. 'Was this an M/S element?' I wondered. Things were getting weird at this point.

By the third listen through it was clear to me that something was wrong. Either I hadn't downloaded all the files, or I'd misunderstood the email thread... perhaps there was a second invite to a folder labelled 'Vocals' that I hadn't seen.

Midway through the fourth listen, as I simultaneously glanced at the correspondence around the project, I finally cracked it, and made the first of many calls; this one to the client.

"Hey Joe, can you tell me please which of the recording files for 'Beach Bum' is supposed to be the vocal mic? I can't seem to find it. Or is there another folder I should be accessing that might have the vocal takes in it?"

"Nah man," says my client, coolly. "We didn't use a vocal mic. I wanted it to be a live recording, and just wanted to sound like me, if you dig what I'm saying."

### Stunned Silence

As you might imagine, at this point I was thrown for a loop, totally flabbergasted by what I'd just heard, my client then doubling down in Trumpian fashion, asserting that he'd gone with this approach because, apart from wanting to remain authentic to his music – which was totally fair enough – apparently "That's what they're doing in Nashville."

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Okay, so now I had to step back a little, and quickly take stock of what I'd been confronted with here.

I had an album worth of songs performed by a singer with his guitar, none of which contained a recording of a close-up vocal, only a stereo pair of 'pencils' that were dominated by the booming sound of the acoustic, a channel labelled 'Central MS Rec' which I'd yet to decipher, and a fourth mic that seemed to be – though it was not labelled this way – a distant mono room mic.

After a slightly stunted, semi-polite conversation with the client, where I might have included the words: "Show me a vocal performance, live or in the studio, where the singer isn't singing into a mic," we signed off.

The next call was to the guy who recorded the album. Let's call him the 'recording engineer' because apparently that's what he calls himself. When quizzed about the session, and wondering if there might be a photo or two of the recording setup, I was told by 'Fred' that there were no photos of the session, and indeed yes, there was no close vocal mic setup in front of (or indeed above, behind, or next to) the singer. None.

Instead, there were only the boomy pencil mics, and a wider, more distant stereo pair of front-address condensers.

"A stereo pair of large-diaphragm condensers?" I asked, somewhat confused. "Right, I see. So the channel labelled 'Central MS...' has nothing to do with Mid/Side then, perhaps in relation to that fourth mic, the distant one? I'm a bit confused about how they go together."

"No, they're a pair. MS stands for Mic Silver, and the other one is the same distance away, on the left."

"Righto..." I added, trailing off into thought about how to proceed from here, and whether to be impolite at this point and ask the obvious question, which I inevitably then did:

"Hey Fred, what was the reasoning behind not using a vocal mic for the recording? I mean, the guy is a singer with a guitar, after all..."

"Well, Joe seemed to think it was the best way for him to capture an authentic sound... and in the end the client is always right."

"The client is always, right? Really? I would have thought if a client comes to you professing to have no recording experience whatsoever, it would be your job to offer him or her professional advice around the best way to capture their performance. Oh well, c'est la vie. If there's no vocal mic then we can't change that fact now. I'll just have to deal with it."

The rest of my conversation with Fred was really a half joking, half lecturing chat around how I disagreed in principle with his so-called 'technique', such as it was, and that if Joe wasn't wearing headphones or monitoring his performance during the session – which apparently, he wasn't – how would have adding a vocal mic impacted the 'authenticity' of Joe's

performance? Fred could have pretty much put mics wherever it suited him.

Politely, and after some friendly banter unrelated to the job, I wished Fred a Merry Christmas and hung up.

Seconds later, I rang Joe again, pressing him in a third phone call where he again insisted that he wanted to sound live and perhaps somewhat raw, and mentioned Nashville again, whereupon I finally relented and went with the unorthodox flow. "It's not how I would have done it," I reminded him, "You know that much by now, but if you insist, then I'll do what I can."

"Can I come down for a listen?" he added, probingly.

"Sure," I agreed, excited no end by the prospect of a client coming down to The Mill unexpectedly on what was then only a couple of days shy of Christmas Eve.

So he came down; we had a listen and another conversation about the recording technique, and after several hours Joe finally left, adding a "Merry Christmas," and a "Thanks for doing this last minute, man" as the door clicked shut.

I got to work.

It was tricky, and things remained stubbornly not what they seemed – certainly not what they were labelled. After a short while trying again to grapple with the four channels, I finally convinced myself that the aforementioned fourth mic, the details of which hadn't ever been resolved to my satisfaction and which Fred insisted was a large-diaphragm condenser, was in fact some sort of weird room mic.

No disaster there. I simply stopped trying to pair this channel with 'MS' and moved on. But something kept chirping in my ear about it, so I eventually contacted the recording engineer again, this time via text:

"Hey Fred, sorry to bug you again about Joe's recording right on Christmas, but I just can't wrap my head around those other two mics being a stereo pair. To me, one sounds clearly like a room mic. I'm just wondering... is it possible that, on the day you guys recorded, there was a mic in the corner somewhere that was packed up but still plugged in? And is it possible that, although you might have been monitoring your four recording mics, one was mispatched and you've inadvertently recorded one of the mics in the corner, by accident? Have a quick listen to the recordings again, if you're able to, and get back to be. Much appreciated! Thanks man, Andy."

Text back from Fred:

"Oh shit..."

So now it was confirmed: I had a pair of boomy acoustic guitar mics that contained a weak and thin vocal sound, a single more distant large-diaphragm condenser that was similarly dominated by the guitar, and a bad room mic that was capturing the whole performance in

an inarticulate, washed out, midrange-heavy way... with birds.

Just what the doctor ordered.

## Mixed & Mastered

But I pressed on, regardless. I mixed the whole album, working hard to dredge up any vocal volume I could, and then mastered it for online streaming.

It sounded reasonably good in the end, albeit compromised by the recording process and certainly not what I would have chosen as a 'sound' for the album. I had made the best of it, nonetheless and somewhere around the time Santa was in his sleigh, I sent it to Joe for a listen.

In a genuine moment of shock for me, when Joe finally heard the results, he freaked out – hated it, and quickly looked to blame me for the album's poor audio quality. Joe's lack of experience in the studio, and my reluctance to throw the recording engineer under the bus for obvious reasons, made the conversation a tricky one. I let him vent at first, and eventually we talked about solutions – which were scant on the ground – and even the possibility of re-recording, the cost of which I simply was not prepared to wear.

But then, out of left-field, Joe told me there were 'two-track recordings' of one song in another folder... "Perhaps we could use that?" Joe pleaded with me out of desperation.

So I download a folder called 'Two-Track Recordings' and imported all its contents into Pro Tools once again. As it turned out, this was a prior session that had been a test run of Joe's album. All the files were jumbled up, but once I got to the bottom of what channels went with which takes, one complete song revealed itself like a Time Team episode. More to the point, it had a whopping seven channels of audio, one of which was a close vocal mic! A miracle!

So I mixed and mastered this track for free for my deeply upset client, even though this whole saga was really nothing to do with me. His response? He loved it!

We talked exhaustively in the days that followed about what had transpired over the Christmas/New Year period, about recording techniques and 'authenticity', and Joe has now finally decided to put the album out as a quasi-live recording, and the other track as his first studio single release.

In 2024, I urge all engineers, if they're recording someone's voice, to please put a mic in front of it. Preferably not 25 feet away in the corner of the room. I don't want to have to mix that 'Nashville sound' ever again!

Andy Stewart owns and operates The Mill in Victoria, a world-class production, mixing and mastering facility. He's happy to respond to any pleas for pro audio help... contact him at: [andy@themill.net.au](mailto:andy@themill.net.au) or visit: [www.themill.net.au](http://www.themill.net.au).



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NZ culture, flora and fauna focal point of experiential gala dinner series



## Encore APAC deliver Kiwi spectacle for 10,000 Chinese delegates

Encore Event Technologies APAC produced a jaw dropping series of gala dinners as part of an extensive program of events and excursions that rewarded the outstanding performance of Amway Diamond top performers. The delegation of 10,000 Chinese visitors flew to New Zealand in 12 waves over two months from 9 October to 5 December for the 2023 Amway China Leadership Seminar.

The event highlight was a stunning final gala function which was staged 15 times throughout the period and treated guests to a spectacular night full of technological wizardry showcasing the beauty and diversity of New Zealand. We spoke to Dan Carver-Shadbolt, Technical Event Director, who led the pre-production and design in the lead up to the event and on the ground, and Director of Innovation, Technology and Procurement Daniel Lourenco, who oversees product and services discovery in collaboration with the US arm of the company.

### Two Venues, Two Cities, Two Islands

Inception began a year out following acceptance of Encore's proposal and initial

design concept, "John Schryver, our Specialist Events Director, simultaneously developed the storyboard as the client selected venues," recalls Dan. "My team then started to layer in the tech and do the first renders for the client, whilst performers were booked, and we continued to progress the show flow and story."

Upping the ante, the client opted for two very different venues in two cities a couple of thousand kilometres apart; Auckland's Viaduct Event Centre and Queenstown Ice Arena. Both venues were new ground for the Encore team, the Viaduct Event Centre only recently having reopened following a major refurbishment and the Queenstown Ice Arena being exactly that; an ice rink. Daniel explains the client's rationale, "We have a 20 year history with Amway and you may think they have been everywhere and done everything, and yet they are still absolutely committed to creating an exceptional experience for their people that has never been conceived or seen before. Every time they want something different, shying away from traditional spaces and looking for venues that represent the host country and offer cultural meaning or potential interaction with nature that can be harnessed to make a unique and memorable event. They

know that whatever they wish to achieve, we have the local knowledge and technological skill set to be able to deliver."

The first three waves were hosted in Auckland, and the following nine smaller waves in Queenstown, spreading the Encore team across the two unique locations; "I am incredibly proud of how our team managed the logistics of having one event still up and running in Auckland, whilst a marathon of an installation needed to get underway in Queenstown."

### Unveiling the L-Acoustics L2D Loudspeakers

The mammoth events which took over 6,000 work hours included 155sqm LED screens, 15 20K projectors, 80 table projectors, eight curved screen projectors, four floor projectors, and six semi-trailers hauling equipment. A highlight for both Dan and Daniel was the first outing of Encore's L-Acoustics L2D loudspeakers, the first company in the APAC region to have used the new speakers outside of the global pilot program.

Daniel had been searching for the perfect line array for Encore for a long period, "Every major

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event company has them, some are larger and perform in different ways. It comes down to technical requirements and preference. Then talk of a new model from L-Acoustic piqued my interest and I organised a private viewing at InfoComm. I knew immediately it was the right product for us." He expands on his decision, "Sure the bragging rights to be the first to take receipt regionally was part of the appeal, but joking aside, it was the design, the tear drop shape, one cabinet, one cable. They give greater horizontal dispersion at the front of the stage negating the need for front fill in many scenarios and venues. It is a one stop solution. Then you have the sound, not necessarily the SPL but the quality. It is absolutely top end, beautiful, with fantastic tonality from 20Hz through to 20kHz and impressive vertical dispersion."

Dan picks up the rave review from the perspective of the tech on the ground; "The set up time is much less as you are not attaching four boxes, just the one. At the Viaduct we had to cover a 270 degree stage but only needed four boxes, no left or right out fill, just a little bit of front fill due to the height. Normally we would have needed a minimum of 24 boxes, six per drop, if not more. It took us a couple of hours to fly and was the fastest system I've seen deployed even though no one had ever touched the system before."

## New Zealand Culture, Flora and Fauna – On Ice

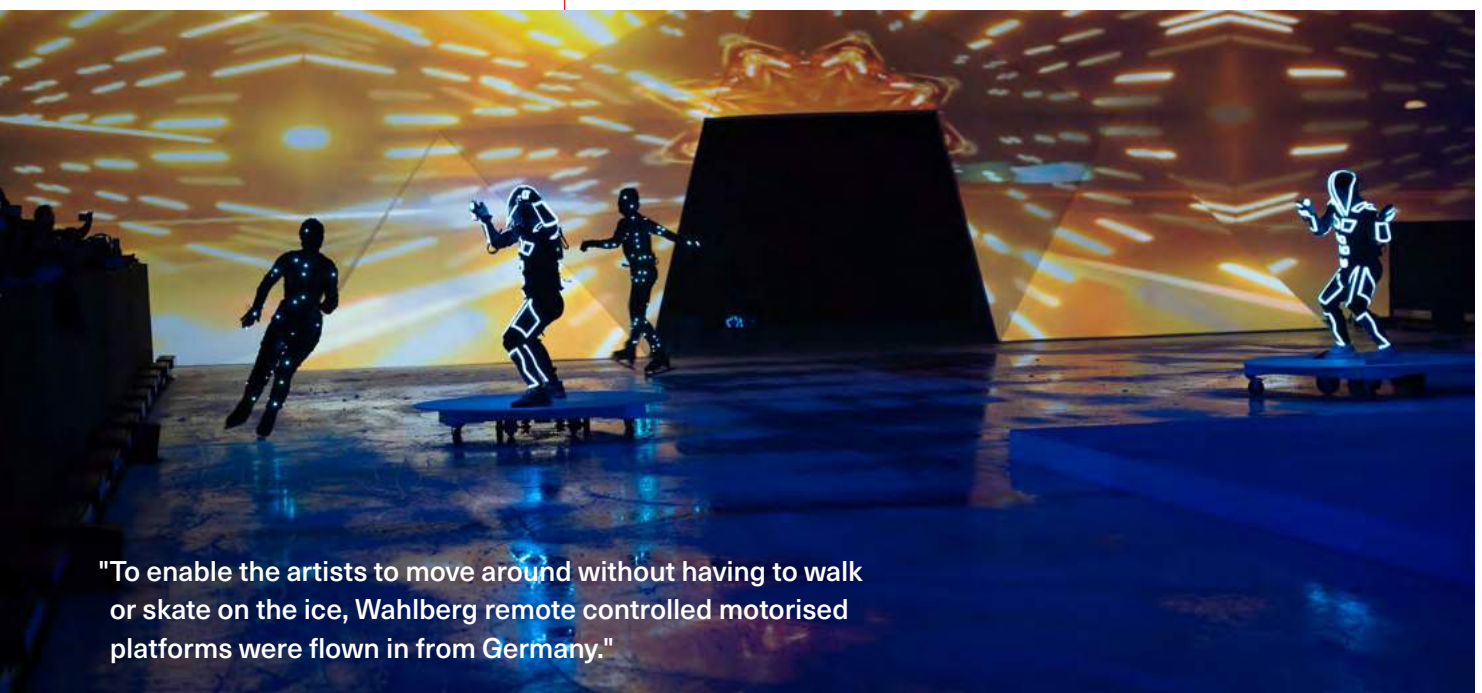
Hands-on event production hit full swing three months prior and the focus was on creating an experience that embodied New Zealand. Entertainment included JGEEKS who combine Māori culture, dance, and music with pop culture and special effects; Kiwi-born C-Pop singer Laurence Larson; and Auckland based Vospertron, a neon performance group. Delegates in Queenstown were also treated to an incredible display on ice. Dan explains, "The five skater performers wore 3D tracking beacons driven by disguise software and we used real time generated tracking content utilising Notch and automated follow-system Zactrack for video and lighting tracking, leaving a visual trail of butterflies or fish. We also had the tracking system on Laurence which really added to his performance."

To enable the artists to move around without having to walk or skate on the ice, Wahlberg remote controlled motorised platforms were flown in from Germany, "Traditionally they are used to move stage platforms but we changed the tyres, put studs on them and converted them into bespoke purpose built platforms that we could use to drive the MC and lead singer to the stage and create a bridge to the VIP area. It worked surprisingly well after a lot

of fine tuning and rehearsal. We put dedicated cameras in the roof to give the operators a bird's eye view and attention to detail was paramount as we all understood the safety concerns, particularly around acceleration and deceleration."

More than 600 hours of custom motion design content was created across the two locations. Encore used a wide range of technologies that showcased panoramic scenes of New Zealand's natural wonders played across a giant, mountain shaped central LED. The immersive screen content changed throughout the meal service and the entirety of the event, seamlessly tying together the theme through the walk-in reveal experience, performances, corporate presentations and main act, "This was flanked by additional curved projection screens and 3D-mapping on the stage floor. We also used snow machines, special effects and multi-sensory interactive displays of earth, water, fire and air to really enthrall guests."

Each dining table and even individual plates had an individual animated projected design, which changed throughout the night to including stunning New Zealand themed creative themes and Amway branded



"To enable the artists to move around without having to walk or skate on the ice, Wahlberg remote controlled motorised platforms were flown in from Germany."



### A Career Highlight

Both Dan and Daniel agree that it is one of the highlights of their careers. Daniel reflects; "Dan and the team faced very different challenges in each location but had the expertise and the equipment to nail both."

Daniel's pride in what Dan achieved is clear, "Dan took on an event of this scale, met all the challenges head on, and delivered what staff have described as the most creative execution of our integrated service offering to date, and on an ice rink! The team really flexed their technical muscles and pushed the boundaries."

Dan is keen to share the love, "It was the team behind the scenes that made it happen. They spent two months away from home, really came to the table, learned a lot and gave it everything."

For Encore, the 2023 Amway China Leadership Seminar set a new benchmark for their event delivery capabilities, showcasing their aptitude for creating experiences that go beyond the ordinary, their global procurement networks, and their local knowledge and expertise.

designs. During meal service the giant, mountain-shaped LED display capped with imitation snow-caps underwent a dramatic transformation with lava projections oozing over the stage, "This created an impressive backdrop for performers, Strings of Fire, who combined pyrotechnics and acrobatic stunts to music setting the stage literally 'ablaze!'"

Working on ice, whilst not a first for Amway having previously held an event at a rink in Austria, "It was a highly complex environment to work in. Within the first few days we quickly learned how long the doors could be open for before the humidity turned our beautiful solid

ice into a pool of water! We worked closely with the ice rink staff and the performers to establish when we needed to do scrapes or put water down."

Rigging also saw heads held in hands at various points; "The Viaduct had incredible rigging capability but nothing flat and we required a reveal LED screen so there was some serious brainstorming around solutions. The ice rink was a blank venue with three I-Beams 14 metres apart so we had to create a temporary rigging structure using approximately four tonnes of equipment. The Viaduct was a sprint and the Ice Arena was definitely a slalom!"



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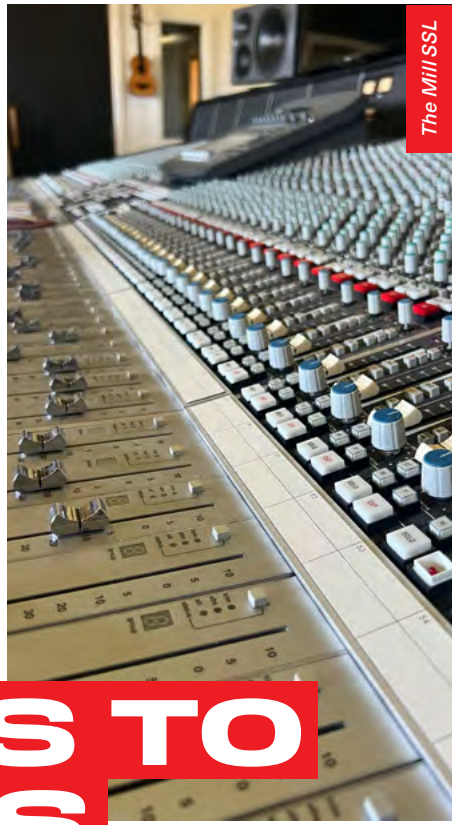
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TAG Roofline



The Mill SSL

# SUN RAYS TO SOUND WAVES

Over the Christmas break, two audio-related businesses down in Bass Coast Shire, in Victoria – The Mill and the Caravan Club – added solar panels and batteries to their power supply systems to capture renewable energy on site, reduce utility bills and minimise their reliance on grid power and coal. Meanwhile, a third business in Sydney, Technical Audio Group, continues to push the boundaries of on-site renewable energy deployment to minimise that company's environmental impact. Here's what all three business have installed, and why.

My own recording, mixing and mastering studio down here in Woolamai, The Mill, and Victoria's Regional Venue of the Year in 2022 & 23, the Caravan Club, now have at least three things in common: they're both music related businesses, both convert solar power directly into sound waves, and each business now functions as part of a local energy collective, via a not-for-profit organisation called Mycelia.

Why? Let's investigate.

## Coal-Powered in 2024... Really?

The Mill uses significant amounts of power for a small business. At its sonic epicentre is a 56-channel SSL 9000K, which alone consumes on average several thousand watts. Around this beast is a significant collection of analogue and digital outboard gear, tape machines and electronic instruments, all of which consume power and require regulated air to function. And in Victoria, where does a large proportion of this power come from?

Burning coal.

Up until recently, The Mill had a small 4.5kW solar system, which mitigated power bills and its reliance on coal somewhat, but the premises here had no capacity to store energy. Any excess power the photovoltaic system produced during the day was exported to the grid for a pittance and then later, when the sun went down, drawn back in at eight times the price!

Add to this less-than-ideal situation the fact that grid power in Bass Coast Shire is often beset with supply interruptions due to weather events and fires, The Mill is often randomly shut down, along with the house and water supply for the property. This has been a constant bugbear of mine for years that I wasn't prepared to tolerate in 2024.

Arguably, this vulnerability is even more acutely felt by the Caravan Club down the road in Archies Creek, where, in the case of a blackout mid-performance, hundreds of paying punters would be stuck in a venue without

power, and perhaps more crucially, a working PA. Thankfully, blackouts have never directly affected gigs down at the Caravan Club thus far, through sheer blind luck. In the event of a blackout now, however, the venue's PA will continue to function for the duration of the gig.

## Alternative Assets

Installation of solar panels and battery backup systems at both these premises were facilitated over the Christmas break through the Mycelia Energy Collective, a not-for-profit organisation that aims to make renewable energy accessible to everyone through its virtual energy grid. Mycelia employed local solar experts, Sunscape Solar in Grantville, to design and install both systems.

The studio facilities at The Mill are typical of a commercial audio production space in terms of power consumption, with one notable exception: its K-Series SSL. Most new audio production facilities have far less power-hungry audio consoles, if indeed they have one at all. Tape machines are also a rarity these days, unless you include ones being repurposed as pot plant stands, as are large racks of analogue outboard gear that everyone salivated over during the '80s and '90s. While many of these toys are still maintained in good working order at The Mill, here they're turned on and off as required. Long gone are the days when everything was left on all the time.

Thanks to Mycelia, The Mill now sports an 11kW solar system comprised of 33 panels spread across two phases, with a 13.5kWh Tesla Powerwall battery backup and Gateway

# Sometimes it all gets too much...



The *Support Act Wellbeing Helpline* is a free, confidential counselling service that is available to anyone working in Australian music who needs to talk to someone about any aspect of their wellbeing.



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managing the flow between the system's various components. The setup has worked brilliantly since Day 1, producing as much as 71kWh of power per day, far more than the house and studio require, although these figures will likely plummet during winter, where the consideration of wind power generation is next on the agenda.

The Caravan Club meanwhile sports an even larger system. Sprawled across several sections of the venue's roof down at Archies Creek are fifty 440W solar panels, and at ground level a 15kW GoodWe three-phase hybrid inverter feeds a 16.6kWh BYD battery backup, and ultimately, the grid. The Caravan Club venue, like so many others around the country, uses significant amounts of power, running everything from fridges, freezers, ovens and cash registers to lighting, PAs, and internet servers. The need for power is an ongoing outlay for this award-winning venue, and its owners, Peter Foley and Mary Howlett, were keen to minimise the venue's environmental impact and power bill simultaneously.

But there's more to these solar installations than first meets the eye. Woven into the fabric

of these two systems is a collaboration with Mycelia and its power retailer, The People's Grid. These two businesses are striving to provide 'matched energy' to the Mycelia Energy Collective, meaning that the amount of power the collective generates is equal to its consumption, as calculated by an algorithm developed by The People's Grid that analyses collective's power usage on an almost minute-by-minute basis.

Added to this equation is the broader notion that the collective holds bargaining power and is more than capable of using technological advancement to effectively 'redesign' the power grid it inhabits, which in the case of Mycelia, allows for a small percentage of the collective's outgoings to be ploughed back into a Community Benefit Sharing Fund. These funds will be used to support other local energy efficiency initiatives, rather than each individual or business simply being at the mercy of a large, extractive corporate entity forever dictating terms of the agreement, and never investing back into local enterprises (If you want to read more about this, go here: <https://mycelia.org.au/mycelia-energy-collective/>)

## TAG Team

Meanwhile in Sydney, well known audio wholesaler Technical Audio Group, which coincidentally supplies audio equipment to both The Mill and the Caravan Club down south, continues to push the boundaries of its use of on-site renewable energy, improved environmentally friendly packaging and recycling methods at both its Stanmore and Kings Park premises.

TAG's solar generated, electrically powered eight tonne pallet truck – an SEA 300 EV that was designed and built here in Australia, based on a Hino cab-chassis – continues to make carbon neutral deliveries all over Sydney. Labelled the 'TAG Zero', the truck represents TAG's substantial commitment to conserving the environment for future generations to enjoy.

And this is no cynical ploy, either. Add to this venture the company's impressive 108kW solar array on the roof of its Kings Park warehouse, and it's clear the company takes its commitment to the environment seriously. Moves are also afoot at TAG to add a similar solar array to its Stanmore premises, a task



TAG Zero and Harbour Bridge

made trickier by the fact of that building being strata titled. But as things stand, it looks to be all systems go in 2024 for the Stanmore premises to provide free power to all its tenants, not just TAG.

The weak link in TAG's power mitigation system, however, is its current lack of battery storage, something identified by The Mill and the Caravan Club as being a vital component of any renewable energy system that hopes to significantly reduce its reliance on grid power whilst simultaneously building an immunity against short-term blackouts.

But this is not something about which TAG was unaware. On the contrary, the company has looked exhaustively into battery storage, but is yet to take the plunge due to its environmental concerns around Lithium – a lightweight metal commonly used in rechargeable battery chemistries, the mining of which is ironically notorious for having its own environmental impact. It will be interesting to see what batteries TAG ultimately chooses to add to its alternative energy system that will allow it to use its own on-site generated power after the sun goes down.

### The Times Are A-Changin'

2024 will be the year where venues and other businesses under the 'audio industry' umbrella move to alternative energy sources to save money and the environment, as well as potentially providing power for small collectives of individuals and business operators interested in alternative power sources and superior systems based on collaboration, not competition.

Not everyone has the financial capacity to invest in large alternative energy infrastructure like TAG, nor roofs on which to install it. But those that do may be able to save themselves, and others around them,



vast sums of money by harvesting the energy that falls on their premises for free daily. Better still, the audio industry more so than most, has a youthful, creative mindset and technological prowess that could easily be tapped into to potentially redesign how we collectively bargain with power retailers. We all use electricity after all. Without it, hands up whose equipment would continue to work.



Caravan Club award and Panels



Mycelia RENEWABLES



### For more information around some of the ideas espoused in this article, check these links out:

**Mycelia Energy Collective:** [www.mycelia.org.au/mycelia-energy-collective/](http://www.mycelia.org.au/mycelia-energy-collective/)

**The People's Grid:** [www.thepeoplesgrid.com](http://www.thepeoplesgrid.com)

**Sunscape Solar:** [www.sunscapesolar.com.au](http://www.sunscapesolar.com.au)

**The Caravan Club:** [www.caravanmusic.com.au](http://www.caravanmusic.com.au)

**The Mill:** [www.themillstudio.com.au](http://www.themillstudio.com.au)

**TAG:** [www.tag.com.au/site/pages/tagzero.php](http://www.tag.com.au/site/pages/tagzero.php)

**Andy Stewart** owns and operates The Mill in Victoria, a world-class production, mixing and mastering facility. He's now a member of the Mycelia Energy Collective and is happy to respond to any pleas for pro audio help... contact him at: [andy@themill.net.au](mailto:andy@themill.net.au) or visit: [www.themill.net.au](http://www.themill.net.au).

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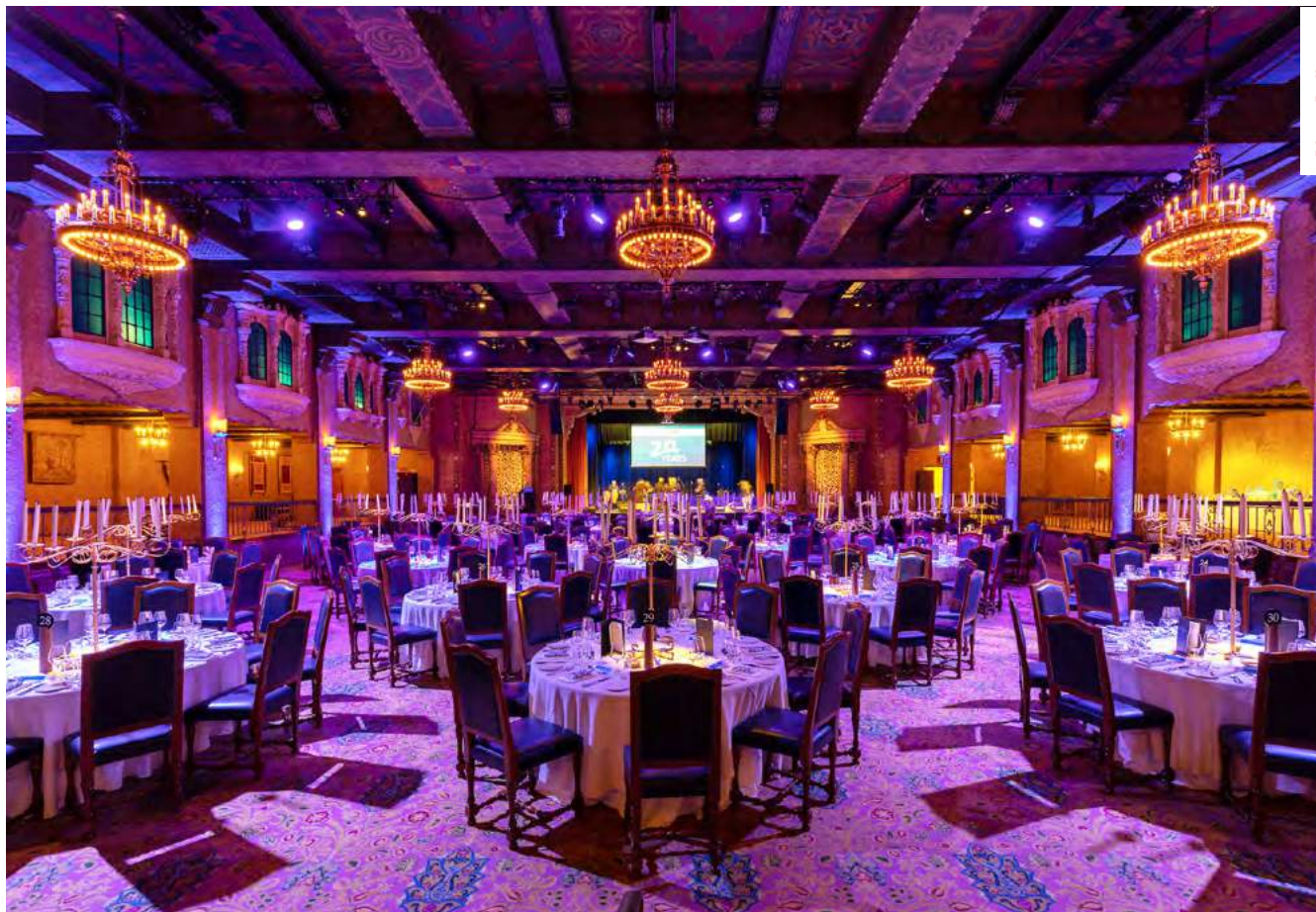
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## PLAZA BALLROOM

# ENTER THE MATRIX



Plaza Ballroom

## ***"Never send a human to do a machine's job."***

**When Bruce Johnston approached NAS Solutions with a refit of the Plaza Ballroom at the Regent Theatre in Melbourne, he requested multiple seemingly contradictory event scenarios. Dave Jacques was intrigued. Just how could they deliver an efficient package incorporating so many disparate and competing elements?**

The first step was to look at the venue and its usages. According to Dave: "The Plaza Ballroom does a really wide variety of fairly high-end stuff, like expensive weddings and corporate functions." Although the majority of the use-cases involve the end stage, "On any given show, it could be a band on the end stage, or it could be on one of the balconies to the sides; it could be middle of the auditorium; it could be all at the same time." Add in clear speech reproduction across the main floor area, and you have a potential recipe for aural soup.

Johnston Audio have been involved with the Marriner Group for years, supplying PA solutions to many of their venues. Most of these are two dimensional, with performers behind speaker boxes at one end of the room and punters at the other. This is relatively easy to scope out. Adding another dimension increased the complexity of this solution.

They came up with a hybrid design that uses a main Left-Right system with subs, focussed around the stage, and some delays that go down the room. Underneath all of the side

and rear undercrofts, they put individual point source delay speakers. This was rounded out by a ceiling grid system with all of the speakers facing down in the main central floor space.

Dave explains that this configuration "allows us to have minimal overlap. For lectern work and stuff like that, you can pipe that into the grid system and it maintains a really even speech intelligibility over the whole floor. Adding to that, the thing that made it tricky was this idea of wanting to be able to have an MC on one diagonal corner, making announcements,

throwing to a band at the other end. Then, having a video playback on one side wall. Doing this sort of stuff, what we needed was a way that we could direct the audio to follow what is going on in the room."

### Enter the Matrix

Soundscape from d&b produces some amazing aural positioning for sonic objects in a mix, but it is inherently designed to produce that in an immersive loudspeaker system. However, its main processor, the DS100, is also an audio matrix, with 64 Dante channels in and 64 out. Dave went way outside the box and wondered if this matrix was the key to solving this intriguing audio puzzle.

Discussions between Dave, Bruce and the Regent staff started with some serious head scratching but eventually resulted in an epiphany for Dave: "I thought: 'hang on a

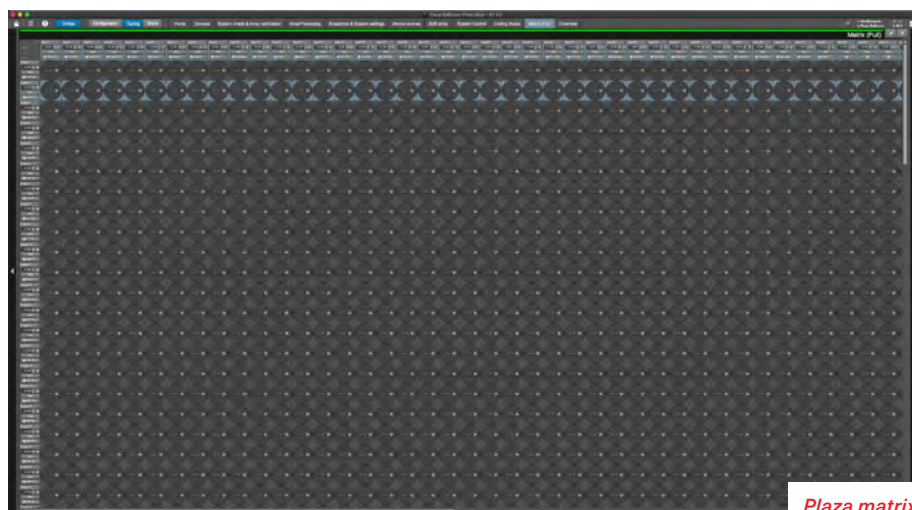
minute - I could do that with a matrix. How many scenarios do we need?" He sat down with their representatives and said: "tell me all of the sources and locations for these sources that you are going to want.' They came back with three or four stage positions - a centre one, a hard left one, a mid-venue left, venue rear and so on." Then he asked: "how many locations for a lectern or a handheld mic?"

At this point they divided the whole room up into a grid and defined nine discrete positions for the lectern on the floor. "And we built each scenario around that. Then we put a lectern position in each of the corners on the side undercrofts." Each input (stages, lecterns, video points) got assigned a scenario in the matrix. So, when something is plugged into a particular input, it automatically sounds like that is the point in the room that it is emanating from.

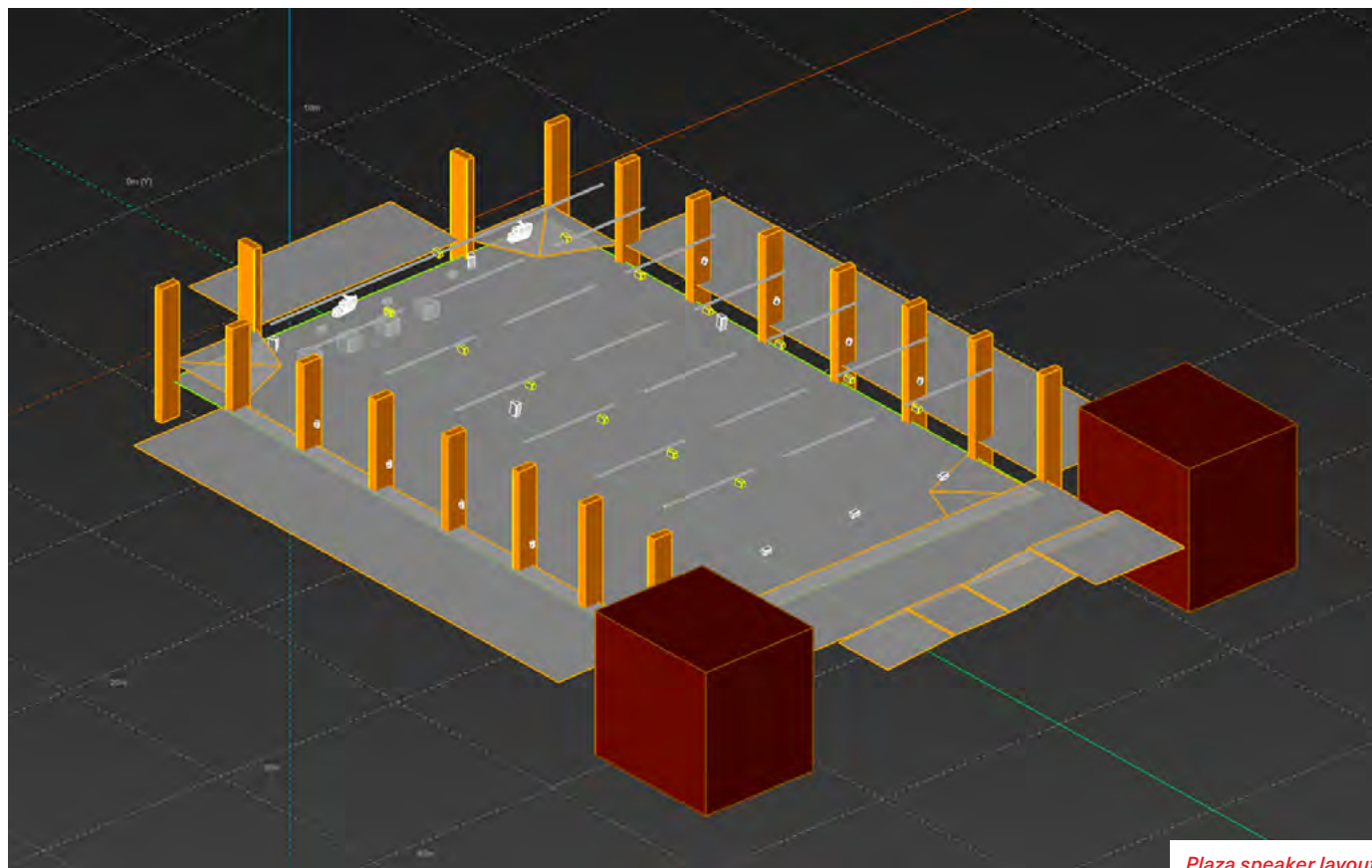
A DiGiCo Quantum 225 for FOH mixing



d&b audiotechnik S8 speakers provide front fill on the main stage



Plaza matrix



Plaza speaker layout



The Regent Theatre Plaza Ballroom was built in 1929

**"It just works. We turn it on and it's so much easier than anything we've had to deal with before."**

**World first?**

This red pill option could be a bit of a first. Normally a matrix just routes signal from A to Z, but by controlling levels and delay timings to effectively create crosspoints for each input, Dave has created a system design that allows each input to be aurally located in its actual physical position.

NAS' clever application may well be unique. When CX asked if this approach had been

taken before, Dave was not aware of anyone else having done things in this particular way. "Not exactly like this. I started off going down the path of designing this as a Soundscape system but what became clear is that what I can't do is have this - when you've essentially got speakers pointing straight down, which was what was needed for lectern work - it's never going to work convincingly as a Soundscape that way. Because, you can't have accurate timing with the speaker sending both backwards and forwards. So, I went ok, I'd

done it before just using a ceiling grid system, to add in a tiny bit of level with an appropriate delay as an extension of an existing main frontal system." Plenty of operators may well have done that in the past on a 2D mix but using it to position objects in 3D is somewhat revolutionary.

Demo-ing part of the system was the deal-sealer. NAS brought in a main front Left-Right system and hung about half the ceiling with d&b E8s (the eventual choice for this role).

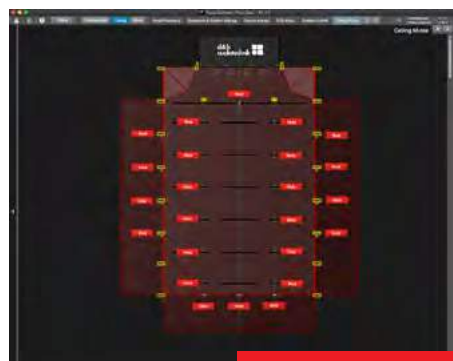
L to R NAS' Dave Jacques and Bruce Johnston



d&b audiotechnik Y10P portable speakers enhance the venue's flexibility



Seven 5D amplifiers power the speakers



Plaza Ceiling Mutes



Plaza R1 system control

"We just hung it all up one day and had them walk around," continues Dave. "Our crew turned on the lectern from the front of stage with zero EQ, just pushed the fader up (on the ceiling grid). And the clients were already impressed: 'Well, that's already about 6db more than we could ever get in here before. That sounds great.' Then they listened to the main PA and were sold." Since installed, "the good thing for them is they have just taken to it." They then gave the best direct feedback that an installer can receive from a client user: "It just works. We turn it on and it's so much easier than anything we've had to deal with before."

All these speakers doing so many functions could be a nightmare to program and commission, but Dave did much of the pre-processing in d&b's ArrayCalc software, using the room's symmetry to allow some copy, paste and coordinate reversals. Even so, it took two days to measure and calibrate each speaker location. This effort seems well worth it: "The net of it is you've got really good intelligibility; they use the ceiling grid (sometimes for background music); they use the performance system for things focussed that way; they use the portable speakers to do focus for other things."

These are admirable goals, but the overall design is the real winner. "When you are standing in a room and you hear someone talk, if you actually hear the direction that the speaking is coming from, it makes a huge difference. If you put somebody in the corner,

and that becomes the source, then everybody instantly turns around and looks at the person who is talking. This is what Soundscape does for us as well, but in this application, even though it's not strictly Soundscape, the net result is much the same."

**All I'm offering is the truth. Nothing more.**

The console chosen for this gig is a DiGiCo Quantum 335. It's been set up so that operators just need to select the required source(s) and they are automatically patched to the correct output matrix. d&b's R1 Remote software is used for turning the system on and off, but deeper functionality of this (or the DS100) is not required, given the level of automated routing and tuning already deployed.

The whole design allows for incredible flexibility with room layout, particularly given how busy the space is, often turning around 2-3 times in a day. The DS100 also has guest console inputs. Dave explains how useful this can be: "If you get a guest that just wants Left-Right and don't want to mess with anything else, then 'there it is'. And you can just spin it up into all of the speakers as need be."

Further versatility comes with speaker location. Clients can "take those Left-Right image speakers and a sub or two and walk them to any corner of the venue. Plug them

in and if they put their signal in the correct input, then they all of a sudden get a Left-Right PA over in the other corner that then bleeds thru into all the fill speakers. They can have multiple things going on in multiple corners simultaneously and it works. They don't have to switch anything - so they love it!"

Morpheus should get the real last word: "Unfortunately, no one can be told what the Matrix is. You have to hear (see) it for yourself."

**The d&b Spec:**

- Main Left-Right: 2 x ALI60 + 2 x ALI90 (per hang)
- L-R Image Fill: 2 x Y10P
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- Associated brackets, rigging & hardware

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Brooklyn's National Sawdust. Photo by Jordan Rathkopf

# David Li Sound Gallery

**MONASH UNIVERSITY**

**In December 2023, I finally got to experience the Meyer Sound Constellation acoustic system at the David Li Sound Gallery at Melbourne's Monash University. And what a way to get to know it; Steve Ellison, Director, Spatial Sound, at Meyer Sound was there, the very man who invented the algorithms that make spatial mixing possible back in 1987, running a workshop on the system. Flanked by Meyer Sound's ANZ sales manager Owen Ironside, they'd also set up a separate Meyer Sound Spacemap Go spatial mixing system in the room, and we got to play hands-on with both at the same time. The experience was nothing less than revelatory.**

The legendary Paul Grabowsky, who in addition to his extensive commitments composing and performing, is also the Executive Director of the Monash Academy of Performing Arts, was on hand to introduce Steve and talk about the Constellation system's importance to the venue's operation. It was Grabowsky's influence that drove Monash to install the Constellation system not just in the David Li Sound Gallery, but also in the Alexander Theatre next door. At the touch of a button, the Gallery can be optimised for speech, acoustic instruments, or amplified music.

The Gallery is an extremely well designed and kitted out black box space, 16 meters long, 9.7 metres wide, and about two storeys tall. The Constellation loudspeaker system comprises 10 UP-4XP on each of the long walls, 5 UP-4XP on each of the shorter walls, 25 UP-4XP overhead and 12 MM-10XP handling low frequencies. Steve demonstrated that the Constellation system can make one person delivering a lecture (i.e. Steve) perfectly audible to everyone anywhere in the room, without using a dedicated microphone. He flipped through a few different Constellation presets via a touch screen. Surprisingly, I found transitions to some of the more reverberant settings designed for music made me feel

nauseous. My brain was rejecting the fact that what I was seeing and what I was hearing were so different, but both entirely natural. Not that you would ever use the system like that, but it was enlightening.

With some more explanation and demonstrations around the room, it becomes apparent that an acoustic enhancement system, Meyer Sound or otherwise, is an excellent investment for any venue that switches between spoken word, acoustic music, and amplified music. Anyone running a venue that is in doubt about this needs to go and experience a system in action.

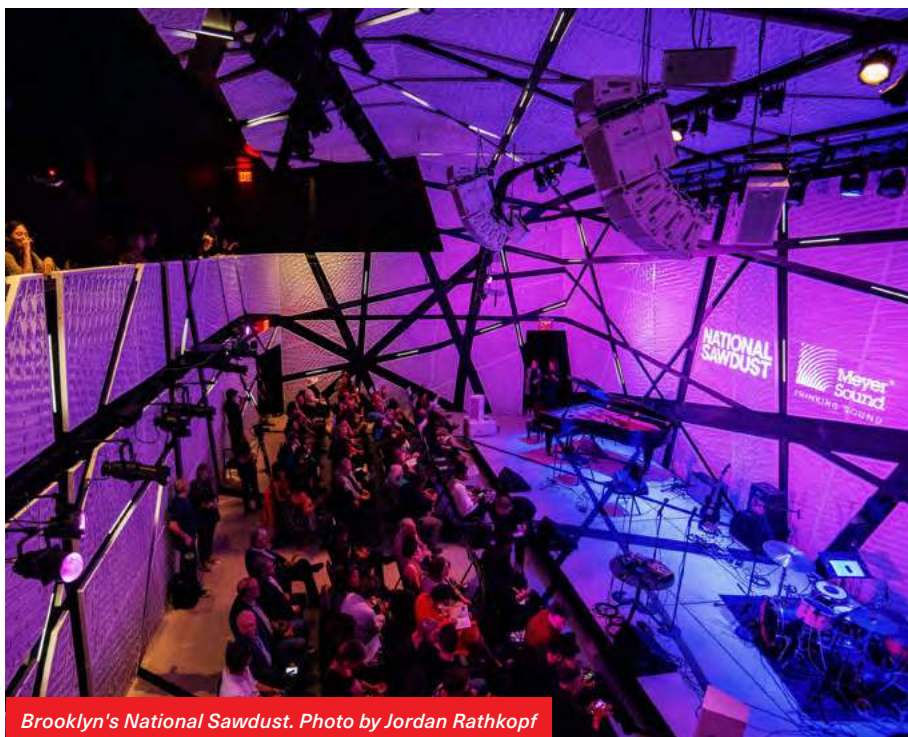
The absolutely mind-blowing part of the workshop was when we started learning about and then using Spacemap Go, Meyer Sound's easy and intuitive spatial mixing system. Running off powerful Meyer Sound Galileo GALAXY processors, Meyer Sound had brought in a system consisting of 8 UP-4slim (lateral and rear surround), 2 ULTRA-X20-Milan (main left/right), 2 USW-112P-Milan (main left/right LF), and one x USW-210P (surround LF). Spacemap Go's iPad app and Mac software make complicated sound design an absolute breeze. You can send sound whizzing around the room using preset patterns, or draw your own, and it's all saveable in scenes you could

trigger from your console. I was doing in seconds what used to take me up to an hour on less capable systems in the late 90s and early 2000s.

Steve absolutely made my day, and possibly my year, by bringing along several excellent multitracks to play with, streaming straight out of his Mac into the Galileo GALAXY via AVB. The first was Erik Hall's 2020 solo recording of American composer Steve Reich's 1976 minimalist masterpiece 'Music for 18 Musicians'. This piece had a profound impact on me when studying composition at university, and the 1978 ECM recording has influenced generations of musicians across genres and around the world.

Let loose on the piece, Steve guided us on how to achieve three different mix objectives; the first, mix it so it's like you're in the audience hearing the piece performed. Next, mix it so you feel like you're onstage. The third and more abstract goal was to emphasise Reich's uses of hockets, which are a compositional technique that takes a melody (or riff, or whatever material you're using) and splits each successive note across two instruments. Think two instruments, one on each side of the room, playing 'Twinkle Twinkle Little Star'. Hocketed, you'd get 'Twin' left 'kle' right, 'Twin' left 'kle' right, 'Litt' left 'le' right 'Star' left. Reich's piece generally has the hockets across instruments next to each other on stage, but by using Spacemap Go, we could easily put them on extremes of the room, or in the air. That changed the piece. Incidentally, 'Music for 18 Musicians' is written to be amplified, with all instruments at equal volume. Steve Reich also specified in the score that the sound system had to be of high quality and stated a preference for Meyer Sound.

Next, Steve gave us an insight into the design of a totally unique performing arts venue in Brooklyn, New York. National Sawdust is an intimate room in a converted warehouse, fitted with both a Constellation system and Spacemap Go PA, including traditional left-right. It's run by a non-profit and is dedicated to the creation and presentation of new music. Steve had multitracks of two live performances presented at National Sawdust. The first was 'Spatial...No Problem', a collaboration between the late reggae producing legend and sonic



Brooklyn's National Sawdust. Photo by Jordan Rathkopf

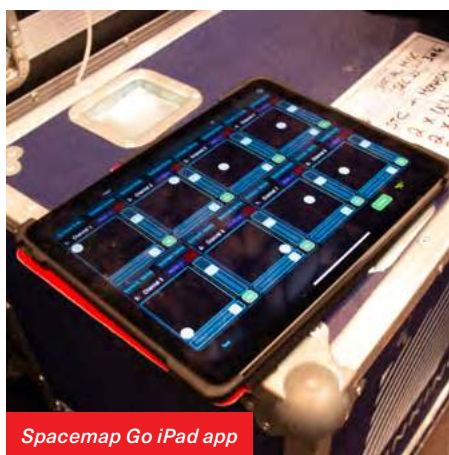
innovator Lee 'Scratch' Perry, and German electronic duo Mouse on Mars. The second was 'A God of Her Own Making', an immersive spiritual opera by JOJO ABOT and esperanza spalding.

Both of these works were extraordinary in their own right, and notable because they were works of art that were created for these kind of sound systems. They couldn't exist without acoustic enhancement systems and spatial mixing systems. It is incredibly exciting to be witness to the birth of new possibilities in music and art. We need to start creating works like these for the David Li Sound Gallery, and other venues like it. We also need to ensure that we start installing dual-use acoustic enhancement and spatial audio mixing

systems to make this happen.

Recorded in 2020 before Lee 'Scratch' Perry passed away, 'Spatial...No Problem' was a multimedia work that surrounded the audience. Sorting through the gloriously unlabelled stems in Steve's multitrack, field recordings, wild junk percussion, The Upsetter himself talking, funky keys, deep bass, and electronic washes all combined to produce a work that I don't think really could be mixed any 'right' way; it was all good no matter what we did to it.

'A God of Her Own Making' was like nothing I have ever heard. Multidisciplinary artist JOJO ABOT and composer/singer/bass player esperanza spalding's live sung and played performances were blended with



Spacemap Go iPad app



The workshop in progress, David Li Sound Gallery

prerecorded sections of their and other's voices, occasional augmented by other sounds. For those familiar with the spiritual jazz of artists like Alice Coltrane, the style was similar, but taken into totally new realms by Constellation and Spacemap Go. Using Spacemap Go's positioning, including to be able to put two voices into the whole ceiling, then using Constellation's ability to make a black box sound like a cathedral, we were able to make the deeply beautiful choral sections sound like heaven itself, and then slot in a deep live electric bass groove in the beating heart of the room. Steve had actually worked on the production and was helping us re-create what they had done in the room. I have never heard sound behave like it.

This was the utterly game changing experience I took away from the event. You can have an acoustic enhancement system, and you can have a spatial mixing system, but when you combine both, astonishing things happen. The playback we were sending out from the Spacemap Go was picked up by Constellation's array of DPA mics in the ceiling, and altered to fit whatever acoustic we wanted. We were mixing in any plane we wanted, making sound exist or move wherever we wanted in three dimensions, and then we could change the actual space, those three dimensions, whenever we wanted.

Now I never, ever want to hear or mix in stereo again.



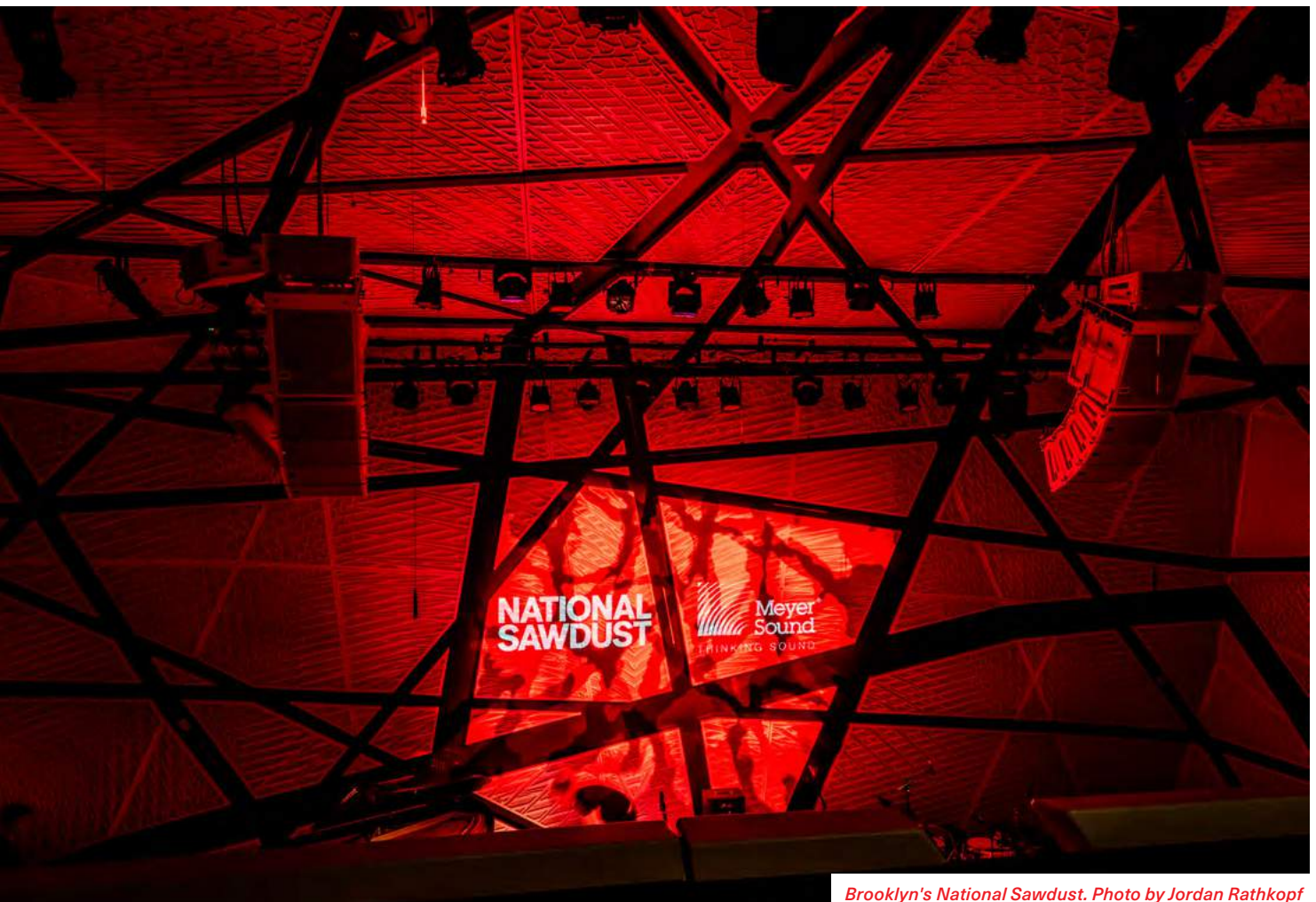
*Paul Grabowsky*



*The workshop in progress, David Li Sound Gallery*



*Steve, Owen, and their workshop attendees*



*Brooklyn's National Sawdust. Photo by Jordan Rathkopf*

# ACTIVE ACOUSTICS AND SPATIAL AUDIO SYSTEMS

## Making the Case for Upgrades

**As I stated in the previous pages, active acoustic enhancement systems are a game-changer for any multipurpose venue. Even more amazing things happen when you combine both active acoustic enhancement and spatial audio. We need more venues in Australia to make the upgrade, and both the economic and artistic reasons do to so are sound (pun definitely intended).**

There are quite a few examples of spatial audio systems and active acoustic systems already installed in Australia. In addition to the two at Monash University, there's a Meyer Sound Constellation active acoustic system in the Telstra Customer Insight Centre in Sydney.

d&b audiotechnik's Soundscape, which is powered by the DS100 signal engine, is capable of running two software modules; En-Scene for active acoustics and En-Space for spatial mixing. This has seen by far the biggest take up in Australia. There are 13 units out there, including units running both active acoustics and spatial in Sydney Opera House, Sydney's City Recital Hall, Melbourne Recital Centre, and more. There are also rental units that run on theatrical productions including Harry Potter and the Cursed Child, Mary Poppins, and Come From Away.

L-Acoustics L-ISA system is installed at Sydney Coliseum Theatre, West HQ, which provides

their 'hyperreal' frontal surround system, but not active acoustics. There's also an L-ISA system at St Michaels Grammar School, Melbourne, running frontal and lateral spatial audio, but not Ambiance, which is L-Acoustics' active acoustics processing software for L-ISA.

Yamaha's AFC (Active Field Control) system has been quietly successful. There's an active acoustic system at the Io Meyers Studio at University of New South Wales, Sydney. The University of Tasmania's Ian Potter Recital Hall in Hobart and the Australian Chamber Orchestra's home in Sydney's Walsh Bay Arts Precinct have AFC systems that can do both active acoustics and spatial.

In almost all cases, the impetus to install these systems has been led by creatives; musicians, creative directors, artistic curators and managers. Often, they've experienced acoustic enhancement first-hand, mainly in Europe, sometimes in the USA, and become immediately convinced of the benefits. With acoustic enhancement and spatial systems now available from several distributors, anyone seeking to develop the market needs to have the network and cultural capacity to convince the creative minds at the heart of our institutions and venues.

Europe, with its vast network of concert halls and history of acoustic classical music, is the technological home of active acoustics. Companies including Acoustic Control Systems, SIAP Acoustic Systems, and Müller-BBM all hail from western Europe, and most have been working in the field since the late 1980s. A more recent entrant into the market is Amadeus Active Acoustics, based in Vienna, which is especially relevant to us here in Australia and New Zealand as they recently

entered our territory in June 2023, with Amber Technology taking on distribution.

The Amadeus product offering is compelling, as they offer both active acoustic processing and spatial audio. Interestingly, they also offer open-air acoustic systems, which have been successfully used to produce opera in outdoor venues. The heart of the system is the Amadeus Core processor, and it can be used with any brand of suitable microphone, speaker processor, and loudspeaker, making it uniquely flexible in the market.

It's this agnosticism regarding the rest of the system that's makes Amber Technology's distribution a wise move for Amadeus. Amber is the distributor for DPA Microphones, which are often used in active acoustic systems. Amber also has multiple options for processing (Xilica, XTA), amplifiers (MC2, LEA Professional), and loudspeakers (Renkus-Heinz, Sonance), making them a one-stop shop for any size or budget in both active acoustics and spatial audio.

"Amadeus' approach to active acoustics and immersive audio achieves a stunning solution for both the audience, performers and venue managers but also respects the needs of the venue itself and its architectural personality," comments Mick Hughes, Brand Manager, Integrated Solutions, at Amber Technology. "By not being locked in to a specific loudspeaker brand or format which, by nature, commands architectural design decisions, enables venue designers and consultants to work much more flexibly in their loudspeaker selection and help the system disappear visually."

To get people's imaginations fired up and a few more systems installed in Australia and New Zealand, here's some inspiration from Amadeus projects.



## Andermatt Concert Hall, Andermatt, Switzerland

The 650-seat concert hall was not initially intended for musical events at all. Instead, the project began with the shell of a preexisting building destined to become a single-purpose conference centre. Wallpaper Magazine described the venue as a “windowless, underground 2,000 cubic meter concrete box better suited for a nuclear bunker than a performance of Beethoven’s Fifth.” Studio Seilern Architects design for the renovation involved removing a large section of the preexisting roof, doubling the acoustic volume to 5,340 m<sup>3</sup> while letting in daylight and picturesque alpine views.

The Amadeus design team worked closely with Kahle Acoustics to understand their acoustic design and develop a system around it. 68 loudspeakers and eight subwoofers from Renkus-Heinz and Atlas Sound sound columns were selected, alongside 32 supercardioid DPA sc490 microphones. The Amadeus Core was installed to lengthen and enhance reverberation to create a late hall response for every type of event.

## Théâtre De Beaulieu, Lausanne, Switzerland

Since its opening in 1954, the iconic 1,600-seat Théâtre de Beaulieu, Lausanne has served the Orchestre de la Suisse Romande, the Orchestre de Chambre de Lausanne, and generations of jazz and popular music greats like Ella Fitzgerald and Quincy Jones. But listening experiences varied for performers and concertgoers seated across the half-rectangular and half-fan-shaped hall.

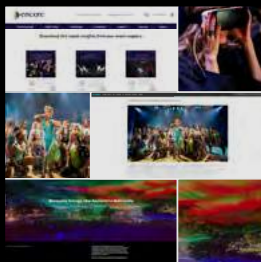
Amadeus Acoustics worked closely with Kahle Acoustics to integrate optimised acoustics using the Amadeus active acoustic system. Amadeus’s 3D modelling and precise placing of loudspeakers and microphones allow for optimal late response and even distribution throughout the auditorium.

## Wiener Festwochen – Mozart’s Requiem

When stage director Romeo Castellucci and Ensemble Pygmalion’s musical director Raphaël Pichon premiered their interpretation of Mozart’s requiem at Festival d’Aix-en-Provence in 2019, the work was instantly praised as a modern masterpiece. However, when Wiener Festwochen contracted Amadeus Active Acoustics to reconfigure Vienna Museumsquartier’s Halle E for the spring 2022 prologue of the festival, it was unclear how the Requiem, which had won over outdoor audiences, would be successfully adapted to the festival’s chosen indoor venue.

The Amadeus Core, enhanced by the Amadeus Active Acoustics design team’s 3-D modelling of Halle E, provided an optimal solution to adapt the venue’s room acoustics into an immersive hybrid orchestral and theatrical setting. This process included comprehensive planning of the system design, installation of the Amadeus Core, subsequent calibration of the speakers and microphones, and creative tuning of acoustic presets to fit Castellucci and Pichon’s vision.

# Creative Services for the AV and Entertainment Technology Industries.



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# Back to the Future at Old Manly Boatshed

I took a call in early 2022. Someone wanted a sound engineer at The Old Manly Boatshed. Greatly surprised I was, as I thought the place had burnt down last century! I spoke to the owner, Goff, about money; "...and a free feed. With beer!" he pitched. I'm in! I went along, down the narrow stairs from Manly Corso, straight into 1990. Complete with an analogue Soundcraft GB4 mixer, sitting in a cozy bio box.

Somehow the Boatshed keeps going in 2024. Hosting comedy on a Thursday, its main work is bands, late into Friday and Saturday nights. Sometimes three bands on a Saturday. And they all arrive expecting miracles from the audio system. Which sadly never occur.

I was so surprised that first evening, as I appraised the four dusty, ancient Crown amplifiers and scattered a small crowd of tiny cockroaches living in the back of the outboard rack. Cleaning up the bio box, I fired up the system, which appeared to have been custom made sometime before or during the Cretaceous period. Two 15" front loaded speakers, some kind of mid horn over an 8" and a high frequency horn that might have been JBL.

At some time this century, someone had installed a Behringer PA processor to do crossover and system tuning. It seemed to work despite showing absolutely no indication; dead screen, dead LEDs. But it worked. In fact, the whole thing seemed to be just turned on, all the time, as it was playing Spotify when I arrived.

The tiny stage was barely big enough for a four-piece band, and a single Bose 802 on either side wall comprised the entire two send monitor system. Once I got over the feelings of

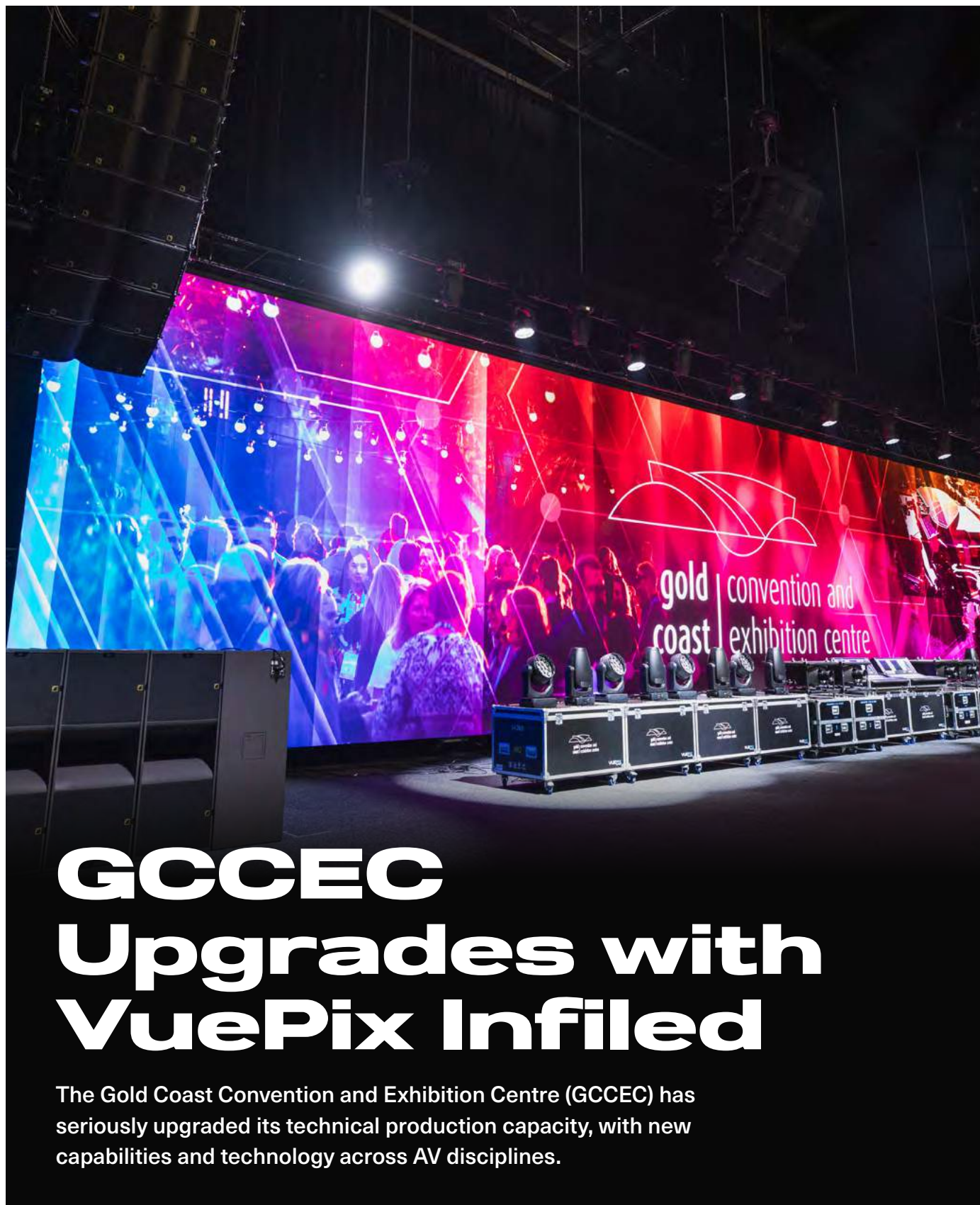


inadequacy, virtually small man syndrome I'm guessing, I found it all to work kind of OK.

I kind of regressed to the 80s, fuelled by free beer, which was forced upon me by the bar manager. I had some fun nights out there, running into musicians I hadn't seen in decades. But my work demands were stepping up as I established myself post-pandemic as

a modern live sound engineer, as opposed to the half drunken touring guy I had been back when the Old Manly Boatshed first came into existence. It, like me, has aged. One of us had to call it quits.

Old Manly Boatshed remains today, exactly as described.



# GCCEC Upgrades with VuePix Infiled

The Gold Coast Convention and Exhibition Centre (GCCEC) has seriously upgraded its technical production capacity, with new capabilities and technology across AV disciplines.

When it comes to upgrades, the newest additions to the GCCEC through ULA Group can best be described as timely, in demand, and gargantuan. Speaking with Chris Davey, Executive Manager - Technology from the GCCEC, "We pride ourselves on staying ahead of the game, and we like a big inventory!" And this latest upgrade has certainly not disappointed.

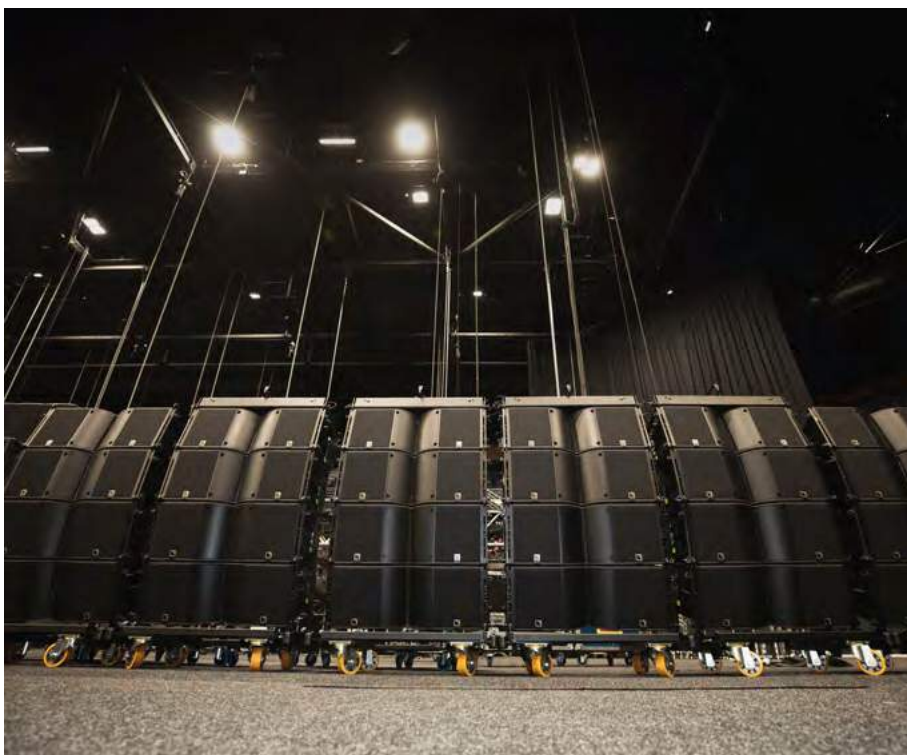
A significant investment in VuePix Infiled LED panels, along with new video, lighting and sound equipment, make up the increased inventory, with Chris noting its necessity due to the large number of high-profile events with high technical expectations produced in-house.

With a 2.9mm pixel pitch, the VuePix Infiled AR Series LED panels recently acquired came

about from; "a technical need for a finer pixel pitch." Chris reflects on the previous ER Series screen purchased for the 2018 Commonwealth Games, noting while the 4.8mm was fit for purpose at the time, being able to stay innovative in the shows they deliver was paramount. The finer pitch means, "you can change the types of events you deliver. New looks, interactive backdrops, and techniques like bringing the speaker into the content."

With the goal of facilitating big looks, the ability to build a screen up to 30m wide meets the needs of ambitious clients, while also having the flexibility of being broken up across multiple gigs. According to Chris, a lot of tech clients come through seeking, “big LED and lighting looks. Having a significant amount of high-resolution LED and lighting inventory allows us to deliver on our client’s needs”.

Being a venue with uniquely flexible spaces, the ease of being able to install the panels quickly, day to day, with many room turns and resets has been achievable through Brompton Tessera SX40 4K LED video processors, the ease of installation, and the serviceability of the panels. “The Brompton processors make it easy to spec your system out, to cable it, fault find, and get the telemetry,” Chris explains. Being the first time the venue has purchased Brompton processors after positive feedback from people in the industry and other vendors; “The investment is already paying off by the telemetry it gives back to you if you have any issues. Going down to that finer pitch, the processing side of things is an integral part.”



Quick and easy to install LED panels were also important in being able to deliver on different client needs in the various blank spaces the venue offers. Having front and back serviceable panels, with everything being completely magnetic, compared with putting up projection screens and projectors makes the whole process simple, with the Brompton processing tying it together with, “the speed of how the interface works,” and, “how quickly the guys can learn the program and put a system together,” Chris notes.

To augment the upgrade, a healthy investment was made across the board on the centre’s video, lighting and sound equipment. The time was right to, “build on an already substantial inventory offering,” Chris relays. And build they did!



Along with Martin Mac Aura PXLs, Ayrton Mistrals, Allen & Heath dLive consoles and mix racks, Christie 4K 25M Series projectors, Barco 4k processing, EXE d8+ hoists and a big stack of Riedel Bolero wireless comms, the piece de resistance, according to Chris, was the L-Acoustics K3 line array PA system. 24 boxes of K3, eight KS28 subs, with fill and processing to compliment, have become the dedicated arena PA, able to meet the needs of clients and business. "Such a great system; flexible, light,

easy to install. Being a blank canvas venue with flexible spaces, having a PA that's quick and easy to install, derig, and put up the next day in multiple different configurations was very important. And the sound quality it delivers is world class."

With the new inventory making its debut at the Tim Tszyu vs Brian Mendoza World Title Fight, the investment already appears to be paying for itself with the delivery of SPL and sound

coverage required of these types of events being able to hit the mark. Positive feedback already garnered on the sound quality from high end clients to the audio novice will no doubt ensure the GCCEC stays ahead of the game, with their even bigger inventory.

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# Meet Your Challenging Venue's Audio Solution: Bose Professional MSA12X

The MSA12X is a powered beam-steering array loudspeaker specially engineered to excel in vocal intelligibility and musicality, even in acoustically challenging spaces. With comprehensive online resources to support a straightforward design and installation process, along with an unmatched price-to-performance value, the MSA12X stands out as the ideal choice for a wide range of installations.

## Beam Steering

Line column array technology creates a narrow vertical pattern control and excels in providing consistent front-to-back sound distribution across longer distances, while effectively containing sound projection to the listeners, avoiding spillage onto floors or ceilings.

Another advantage of the line column configuration is its extended coverage distance. In this arrangement, the drop-off in sound pressure level (SPL) over distance is only -3 dB SPL per doubling of distance, compared to the conventional loudspeakers which exhibit a drop-off of -6 dB SPL.

Passive columns require mechanical aiming that creates coverage compromises. However, in many environments, achieving this might not always be feasible due to mounting limitations or the potential presence of live microphones in close proximity to the loudspeaker. When mounted at a preferred height location, this necessitates mechanical aiming, often resulting in compromises to the overall coverage. Furthermore, it has the potential to detract from the overall aesthetics as it tilts downward from the wall.

MSA12X provides the versatility to be installed at various heights and precisely aimed using software. This guarantees optimal coverage for listeners while mitigating the potential for picking up live microphones. Utilising its digital beam steering capability, the MSA12X extends its reach to applications that passive line columns are not ideal, such as raked floors, and audience areas with a main floor and second floor audience area. The MSA12X goes beyond conventional loudspeakers or passive columns with its dual-beam functionality, enabling the vertical sound beam to be split into two, providing simultaneous coverage for separate areas such as the main floor and a balcony.

## Ease of Installation

Bose Professional have taken note of installers' frustrations with various steerable arrays. The core problem lies in the time-consuming design and installation processes, often plagued by excessive guesswork. The solution

is an installer-friendly online instructional webpage providing a seamless step-by-step workflow for designing, configuring, and installing your MSA12X all from one webpage.

Select from just two models, white or black, and paint them if needed without custom parts, ordering, or oversized shipping boxes providing an easier design, order, and installation. All brackets and interconnect cabling included - no extra parts to order. With a "hang-and-mount" technique, the installation process is more simplified.

For increased throw and coverage, integrators can simply add a second module, and the output is amplified by +3dB SPL, effectively doubling the covered distance due to the line source nature. Furthermore, the expansion extends the low-frequency cutoff from 400Hz to 200Hz, plus dual-beam functionality is improved. Expansion to three modules allows for a further increase of 1.5dB SPL and enhances beam control down to 130Hz and optimal dual-beam functionality.

## The Specs

The MSA12X runs 12 x 2.25-inch independently controlled and amplified transducers to create a vertical sound beam that is electronically steered for precision aiming to cover the entire audience while reducing disruptive echoes that compromise clarity, without mechanical aiming or angling brackets.

Its frequency range is 58Hz to 18kHz for speech and music reinforcement. The articulated transducer configuration provides 160° horizontal coverage, delivering consistent tonality across the entire audience, ensuring each listener enjoys the same sound experience.

The integrated DSP and 600 watts (12 x 50 W) of amplification makes the MSA12X a complete self-processed and powered solution without the requirement for a standalone amplifier or loudspeaker processor.

A Dante digital audio network interface provides one network cable connection for audio source and system control. Send digital audio to the MSA12X and use the same connection for ControlSpace network

integration, enabling control, monitoring, and beam preset recall from ControlSpace-compatible processors, end user controls, and third-party control systems. A line-level input is also provided for local analog source connection.

The Bose Professional MB210-WR passive subwoofer matches the MSA12X and provides low-frequency extension down to 37 Hz. It features two 10-inch high-excursion woofers in a compact, exterior-grade plywood enclosure.

## Software and Control

Bose Professional Array Tool is the first step in designing the MSA12X into the room. It is a simulation and analysis software that allows audio system designers to define venue parameters, strategically position the MSA12X within the virtual space, and accurately predict its performance across a diverse range of real-world environments. Once defined, the tool seamlessly synchronises its predictions with ControlSpace Designer software, forming a workflow that streamlines the entire audio system design process.

Bose Professional ControlSpace Designer is the next step to seamlessly integrate the prediction calculations generated by the Bose Professional Array Tool into the MSA12X. This software application also configures and designs our entire ControlSpace-enabled processors, smart amplifiers, and loudspeakers using one user interface. Specific to MSA12X, it provides the ability to program settings, recall beam presets, and monitor operations in real-time.

The MSA12X introduces the capability of beam preset recalls, accessible through the ControlSpace Remote app running on a tablet. With a simple press, these buttons can activate presets that dynamically adjust the MSA12X's beam. This functionality proves invaluable across a diverse array of environments, from adaptable meeting spaces with room partitions to performance halls featuring second-floor balconies that can be deactivated during periods of non-use. You can also utilise the tablet with ControlSpace Remote app to activate the MB210 subwoofer when used for music reinforcement.





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## Holoplot X1 makes musical theater debut for Atlantic Theatre Company's Buena Vista Social Club

**A combination of Holoplot's unique sound control capabilities, and creative sound design by Jonathan Deans, let the vocals shine for this brand-new off-Broadway production, Buena Vista Social Club.**

Based on the true story of the legendary Cuban ensemble, Buena Vista Social Club (BVSC) brings the iconic 1966 Grammy Award-winning album, rich with pulsating Afro-Cuban music, to the Atlantic Theater Company. Produced by Cuban American playwright, Marco Ramirez, the show debuted late last year at the Linda Gross Theater and received rave reviews in publications from the New York Times to Rolling Stone Magazine.

Highly acclaimed sound designer, Jonathan Deans, known for his work on Broadway hits and Cirque du Soleil productions, collaborated with music supervisor Dean Sharenow and director Saheem Ali to create an unforgettable auditory experience, with global technology provider PRG furnishing a comprehensive audio and lighting solution for the production, including the first Holoplot X1 system to grace a musical theater production.

Deans recalls Sharenow reaching out about the project, piquing his interest because of his familiarity with the Buena Vista Social Club album. Working with a new team and venue, Deans' aim was to gain both a deep

understanding and respect of the music's origins, blending this with his expertise in theater sound design to create a cohesive audio experience.

"My role is to take the musical ideas, performance ideas, and actors, and put it into some kind of shape and structure for the audience to respond to," Deans says. "I specify the equipment, make it work for the production, and work with everyone involved."

The Atlantic Theater is a converted church, with architecture that poses acoustic challenges. "The theater itself has undergone significant modifications to become a delightful space for any show," continues Deans. "However, accommodating live percussion instruments on stage, including congas, bongos, and timbales, sometimes just six feet away from the audience, means it inevitably gets loud. The one thing that I was very concerned about was the vocal presence of the actors."

Deans needed precise audio control over the seating area, with vocal clarity amid live

percussion being his main priority, which is why he specified Holoplot. "I'd been watching, learning, and going to the demos from Holoplot for some time, and arranged for us to see if they could shape and create localisation that was available within the coverage of the whole seating area."

Utilising their proprietary 3D Audio-Beamforming and Wave Field Synthesis technology, X1 allows for the creation of precise coverage zones for the audience as well as sound localisation in 3D space. The combination of this proved essential for managing vocal presence in a tight and potentially loud space without overwhelming the audience, and led to Jonathan Deans using the small X1 deployment in a unique, creative and impactful way.

"Holoplot has a different approach to line array and point source speaker coverage that's very successful for treating our vocals in this very tight space and, potentially, very loud situation," Deans notes. "Our audience is a full demographic, so we can't just turn it up; we wanted to make sure that we had the best coverage and the highest level of control. So, I reached out to the team at Holoplot to see if they could make their system work in a theater environment."

Holoplot technology allows the user to optimise the sound within a room, so intelligibility is increased without needing to increase the volume, making for a comfortable listening experience that allows for all elements of the show to be audible.

Reese Kirsh, Segment Manager of Performing Arts and Live at Holoplot, explains the system setup: "A single central mono cluster of three X1 modules is configured horizontally, and exclusively designated for vocal reinforcement. Jonathan opted to trial Holoplot in this way due to the theatre's compact size and the steeply raked seating, employing Holoplot 3D Audio-Beamforming to minimise space requirements. Three beams are formed from the cluster – one Optimised Coverage Beam covers the entire audience area, while two further beams function as Virtual Sources placed behind and alongside the array, delivering stereo ensemble vocals. This approach produces subtle yet impactful results. The system design creates space within the mix, letting the vocals shine within a complex musical arrangement. It's a unique concept for a traditional mono cluster and something no other system could achieve."

Deans acknowledges PRG's pivotal role, ensuring the availability and suitability of equipment within budgets and timelines. "PRG not only supplied all requested equipment but also provided essential support. They always adapt to the needs of the built environment, supporting designers, crews, assistants, and the intricate process of assembling a show."

"We were so excited to work with Jonathan Deans and the team from the Atlantic Theater Company to bring the first theatrical application of Holoplot to life," said Alex Donnelly, VP and General Manager, Theatre

at PRG. "In the last 18 months, PRG has redoubled its commitment to the audio segment of the business with sustained investments across facility, equipment, and of course, our people. This collaboration exemplifies our steadfast commitment to pushing the boundaries of what's possible in the theatre and actively contributing to the realisation of our designers' ambitious visions."

Timothy Jarrell, A1 production mix engineer who was in charge of mixing each performance was pleased with the system. "X1 allows us to get multiple audio fields to the audience so we can provide a lot more clarity. Matched with the microphones that are right at the actors' mouths, it provides separation from the instruments, which are right behind them," he explains. "Holoplot's technology is an interesting concept and very cool. It was great to work with their engineers to get

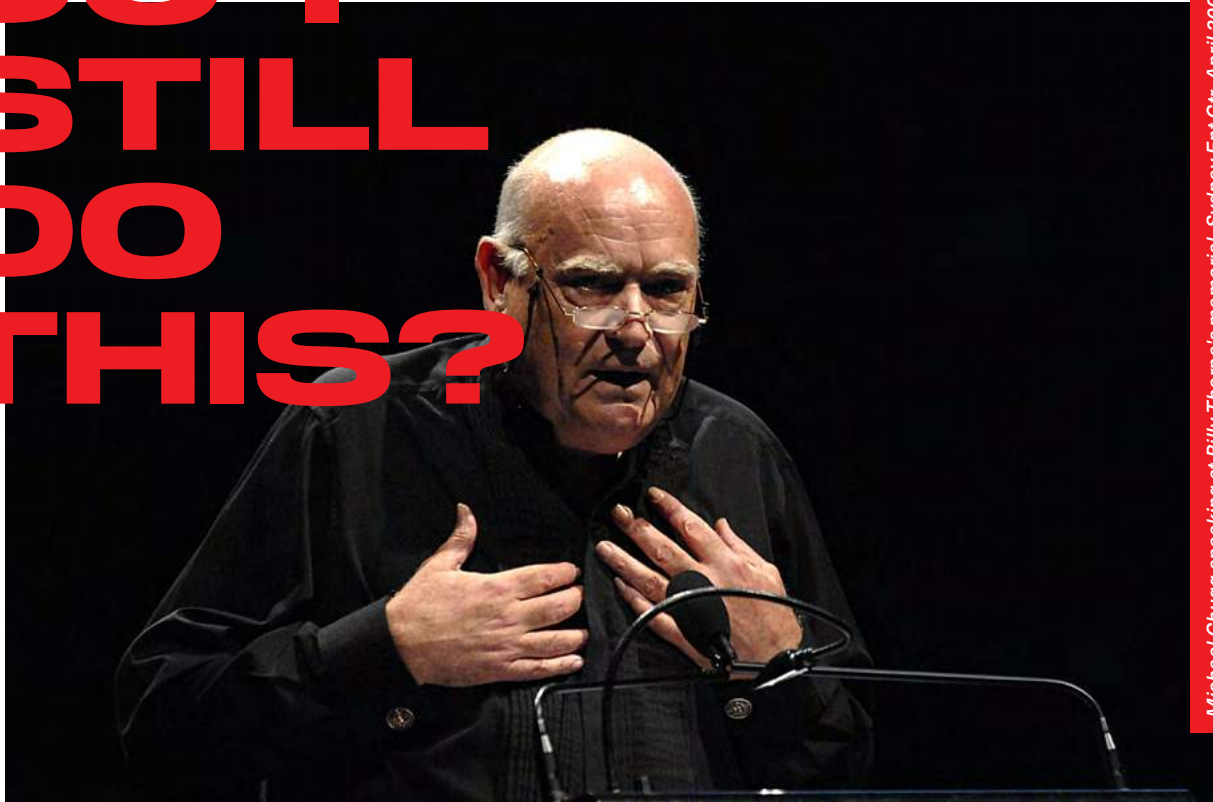
insight into both the software and hardware. It keeps our audio pattern tight in the room, not bouncing off the walls, and we're able to control the image to cover the seating area and get separation so that we're not having to deal with reflections."

"Working with Jonathan Deans and PRG on this project was exceptional. The show has achieved precisely what it was intended to from a Holoplot standpoint," Kirsh concludes. "What Jonathan has created with X1 for vocal reinforcement is truly remarkable. The organisers, production crew, and PRG team have all worked together to deliver an amazing show. We're thrilled to have introduced Holoplot to musical theater for the very first time. It has demonstrated our value and pioneering technology to the performing arts sector."



**"We were so excited to work with Jonathan Deans and the team from the Atlantic Theater Company to bring the first theatrical application of Holoplot to life."**

# WHY DO I STILL DO THIS?



Michael Chugg speaking at Billy Thorpe's memorial, Sydney Ent Ctr, April 2007

## Michael Chugg

*Why Do I Still Do This? Our series is based on people of or beyond retirement age who still work in the industry.*

Kicking off this new regular feature, Julius spoke with Australia's second most famous Tasmanian, at his holiday retreat in Phuket. He is one of the most successful music promoters in the world and has massive industry perspective at age 76. Today Chuggi has a joint venture with Frontier Touring, fronts Chugg Entertainment, and runs Chugg Music with Andrew Stone.

Much has been written about Chuggi, most of it true. He is the Jedi Master of crowd control. At the infamous Guns N' Roses outdoor show at Eastern Creek, Sydney, back in 1992, the crowd were restless as they awaited the eventual and typically late start for a band with a problem called Axl Rose. Back then it was de rigueur to bring your own, and many of the fans were a few sails to the wind.

Chuggi had been up on the mic a few times to pull the mob into order, and then he spots a bonfire erupting on the top of the hill. The fans had gathered beer cartons and were

busy shoving more into the flames. 'Put that f---ing fire out NOW or the band will go HOME!' he yells. Horrifyingly many of the half tanked started to stamp on the flames, several catching alight. They were doused with beer.

Modern etiquette has tempered his approach slightly but he still enjoys yelling ' Hey! You in the black T shirt....'

I'm interested in talking about the shifting sands of the production industry, and he's interested in keeping ticket prices real. "Everything is up in cost of course. Taylor Swift with 100 trucks! But if you sell \$2 million worth of T shirts in one night, you can afford it!"

"Now the stage alone can cost 300 to 400 grand every time. Add on 15% for the venue, security, ushers, it's not cheap to do stadiums. You have to sell them out. Last year we did 35 arena, and 15 stadium shows, plus all the smaller acts."

"I continue to do the tours I want to do. The last

Robbie Williams tour was the biggest we've ever done. With Elton John, I was lucky to do those 40 farewell shows in 2019-2020, then to honour those last shows in NZ we got another seven shows in Australia last year. We had a great tour with The Chicks last year and a breaking tour with a young English guy called Jacob Collier who we believe will be a stadium act in a few years. A guy at Quincy Jones Management told me about him. I love a multi-ethnic sell out audience!"

Starting as a booking agent at Sydney's Consolidated Rock in the 1970s, Chuggi became a music manager at a time bands were struggling to survive on the road. "Back then (Michael) Gudinski and I spent all the money we made trying to break our bands overseas. Now it's more stand alone. The Albanese government have legislated financial support to export Australian music. I'm on the board of Music Australia. I do it because I'm passionate. I'm still pretty sharp."

I certainly agree. But now Chuggi is back in the management game, in a different climate.

"12 years ago, I took on Sheppard. I didn't want to get back into management again. I was hassled by a keyboard player in Brisbane, he drove me crazy about these kids, so we said 'come down and sing some songs in the office'. The songs were really interesting. Then Brian Brown was on about his mate's kids from the Northern Beaches. I went to the Bears Den at the Metro and there were 200 beautiful 18 year girls going nuclear for this band, so I figured there was something going on here." That band is Lime Cordiale.

How does it pay off for bands like these? I ask.

"Streams and syncs." (Sync, or synchronisation is a process where songs are combined with moving images – film, TV series, adverts, video games, trailers and so on.) "Sheppard have done a billion streams, currently 12 million a month. Living in Nashville, Casey Barnes' music

was in the sync for the National Big Bash on New Years Eve, he went from 250,000 streams to 60 million in just a few years."

"It's big money. Lime Cordiale have done 90 million. You're getting into really good money. Syncs can add up to several hundred thousand."

Chuggi is off to see Sphere in Vegas. "I'll be checking it out in April. My friends who run venues say it is amazing. The ABBA Voyage theatre in London is through the roof; I'm sure Paul Dainty will bring it to Australia eventually. Look at the ABBA museum in Stockholm, they're bigger than ever."

Chuggi is one of the few remaining independent promoters. I want to know why.

"I'm not the sort of person anyone would want to acquire, because I tell the truth! I'm very happy with my joint venture with Frontier Touring, two of my team are on the management board."

How about losing money? "I learned a long time ago just because you love something you can't expect everyone else to love it as well. I sometimes wear a Simon and Garfunkel T shirt, it only cost me \$750,000. The thing is, you decide, you do it, if it loses money you just move on. I haven't had a crushing loss for a long time. We know what we're doing. Susan Heymann has been with me twenty years and is regarded as one of the best worldwide."

Production designers – what are they doing wrong?

"Australia has always had some of the best designers and roadies in the world. Wayne Grosser from the Gold Coast does sound for Sheppard. We fly him to Nashville if we have to. You can spend half a million on show design, but you can build a good one for less."

**"It's all about the songs."**



Michael Chugg at the Vans Warped Tour, Dee Why, April 2002



Jacob Collier



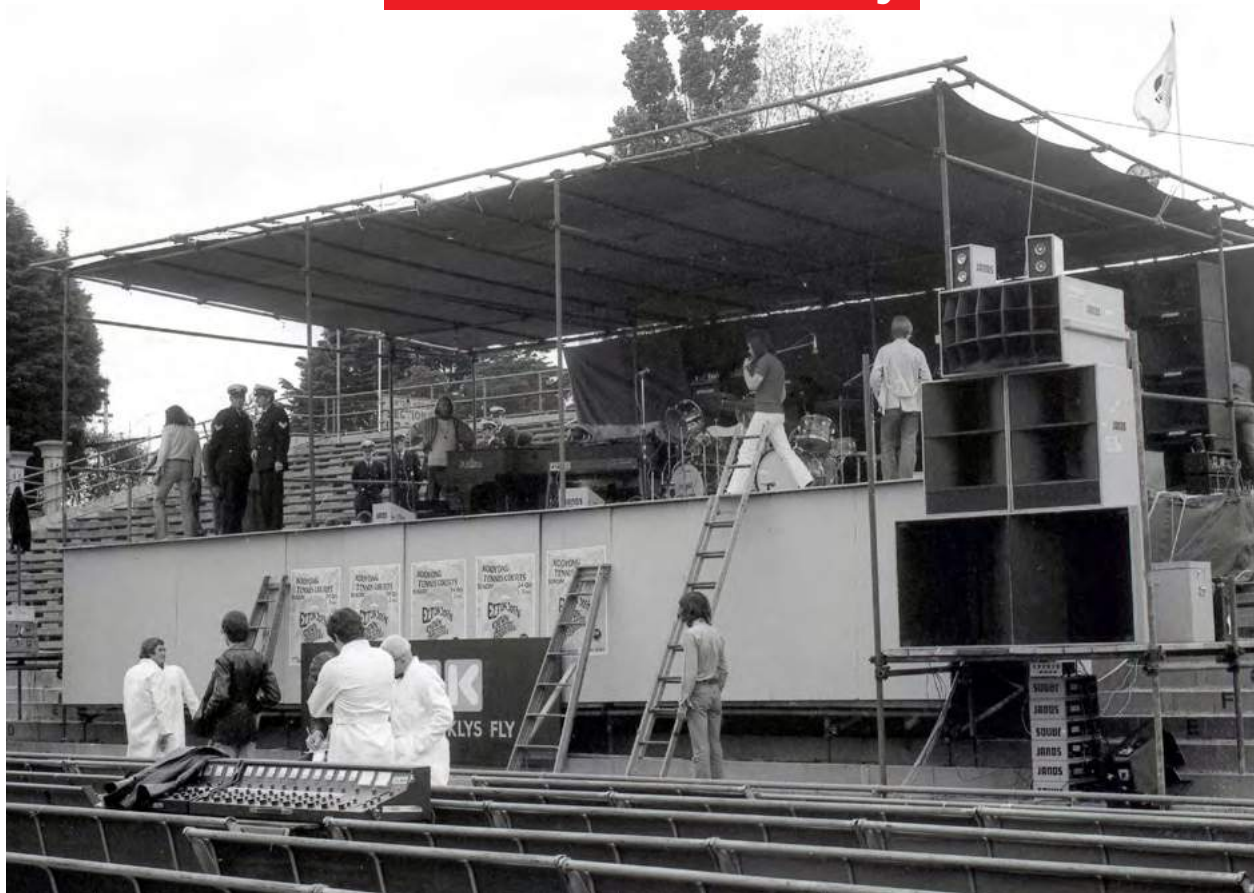
Elton John - Farewell Yellow Brick Road



Lime Cordiale

# JANDS

An Australian Story



Elton John concert, Kooyong Tennis courts Melbourne. Jands 4-way speaker system with 16 channel console in the foreground. Photo Credit: Phillip Storey

## A 354 page coffee table book, lush with history

**Ron Ringer has authored an accurate history of the dominant Australian entertainment equipment supplier Jands, which started in an eastern Sydney suburb in the late 1960s supplying lightshow rentals. Today it is a \$100m+ company. Jands commissioned the book as they passed 50 years of ownership.**

Jands surfed the exponentially expanding contemporary rock scene that exploded from late 60s music such as the Rolling Stones and The Beatles. As a kid with a radio, I grew up slightly behind the Jands pioneers who were building EVERYTHING in a Rose Bay shopfront as my high school bus ground past, headed to Vaucluse Boys High School.

At school the tech guys in the hall spoke reverently of former students Bruce Jackson and Phillip Storey who preceded me. They formed J and S, after leaving the place with a well working PA system, capable of handling lunchtime bands. Of which we had many. It transpires another Jands foundation personality, Robert Young, also went to Vaucluse Boys High.

The book draws together the identities of the scene. Roger 'Ellis D. Fogg' Foley, JandS, and the Mulholland and Robinson brothers. The latter were running a lightshow hire business up on the north shore, while the J and S partners were the dominant lightshow hire business building strobes and colour organs in their shop. Foley did 'experiential light shows' at a time people sought the Woodstock vibe.

This confluence of characters is tracked so well, where the tiny eco-system of lightshows suddenly blossomed into live sound, with designer Gil Macpherson pivotal. A successful

outdoor show at Heddon Greta leads to the Jands team, now joined by 'denim legend' Howard Page, nailing the very first national tour for Elton John in 1971.

As Sunbury 1972 comes around, they are challenged to build a second system. They do it in-house. Punishing import tariffs made local manufacture viable, and Jands went on to build an A to Z of live production equipment over subsequent decades.

Around page 100, I'm struck by how Jands navigated change. Simultaneously they found new places to do business with technology continuing to evolve, while the underlying economy lurched through credit squeezes, recessions, bank deregulation, the currency float, punitive tariffs, and sales tax imposts on the gear they built for their rental division. Starting with a Bakelite telephone, they met and mastered the telex machine, PABX, fax and as soon as it came on the market, the computer.



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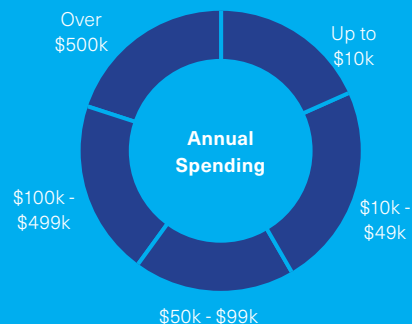
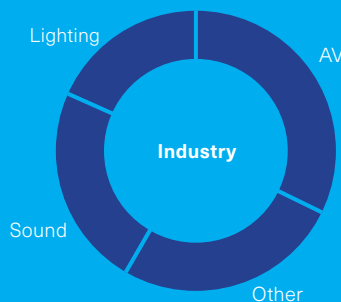
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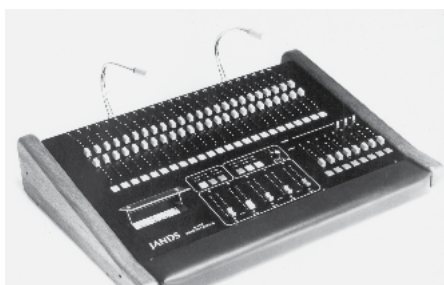
Email [jason@vcscreative.com](mailto:jason@vcscreative.com) or call 0407 735 920 for more information.



*Sydney band Pirana with Jands PA and lighting equipment. Paddington Town Hall concert. Photo Credit: Phillip Storey*



*Jands manufacturing area at 380 Princes Hwy, St Peters. J600S amplifiers and JM6 consoles being assembled. Photo Credit: Jands Collection*



*Jands JL 24/8 Lighting control console. Photo Credit: Jands Collection*



*Jands JM 8 24-32 channel audio console. Photo Credit: Jands Collection*

On that, David Mulholland found the first email system in 1984 and Jands became an agent for the electronic mail service developed by International Management Communications. Subscribers accessed the system using a portable Radio Shack computer with a small liquid crystal display. Promoter Michael Coppell took his system to Europe and marvelled that communications were immediate and only the cost of a local phone call. By contrast he said sending a five-page fax from a hotel would cost \$170.

For four managers, production companies and others involved in the industry, the system saved money on international phone calls and solved the problem of 'telephone tag'. At its height there were some 3,000 users.

The personalities also emerge in the early pages; charismatic Eric Robinson wrangling tours, reflective Paul Mulholland managing the manufacturing and imports, younger David Mulholland doing lightshows and later sound, Ed Robinson working on assembly, school friend Robert Young building speaker boxes

while doing accounts. Philip Storey stays on after J and S sells out because the partnership he had with Bruce Jackson imploded. Working with sound engineer Howard Page, Storey designed amplifiers, consoles and a range of audio electronics at Jands' first factory in Chalder Street, Marrickville.

They faced common adversaries from businesses, banks, and the tax office, suspicious of long-haired rock and roll types. The theme emerges of the continual expansion of the business through astute mergers and

acquisitions, all of which are meticulously laid out. A series of real estate deals saw industrial properties acquired around Sydney Airport, a practical move at the time which have become very major assets today.

Most, if not all, long-term employees are name checked respectfully through the 354 pages, in which period photos mostly from Phillip Storey for the first two decades feature. That the photos even exist is of note, since people working the early phases of the rock revolution had no time and little money for cameras and film processing.

As the epoque progresses, the division of the concert production business and the importing and manufacturing firm are detailed, with each entity facing ebbs and flows as the economy of the nation fluctuated. A downturn in concert touring led to the pursuit of theatre sound, which today has JPJ (today's iteration of concert touring) as market leader. The phasing out of tariffs meant replacing locally made products with imports.

The more recent decades become different reading with a lot of detail around what is one of the enduring successes of the firm; designing and building lighting control systems which were sold globally.

We learn of the challenges of succession with the passing of Eric Robinson who negotiated the sale of the concert sound company on his death bed. The final decade is spelled out right up until recently, with Paul Mulholland determined to simplify the complex importing company. They overhauled their product offerings, quit lighting manufacture, and sold off the theatre projects division.

A portion of Eric's shareholding in Jands is acquired by Richard White, now famous as the CEO of WiseTech Global. Richard's earlier role in Jands is detailed; he merged his Rock Industries manufacturing company with Jands in 1982 and designed their first computerised lighting control system before leaving to build what is today a 16 billion dollar company.

This also became a turbulent period with the progressive departures of long-term staff. The book states that half of all staff have left in the past decade. They spell out the future direction of the business, which is now piloted by CEO Phil Muffet, COO Geoff Smith, and CFO Michael Glendinning.

Paul and David Mulholland have stepped back from the front line but remain engaged with Jands.

The final line in the book is apt: "One might ask, where to now?"

Jands - An Australian Story is available to purchase through Amazon at

<https://www.amazon.com.au/Jands-Australian-Story-Ron-Ringer/dp/0646883097>



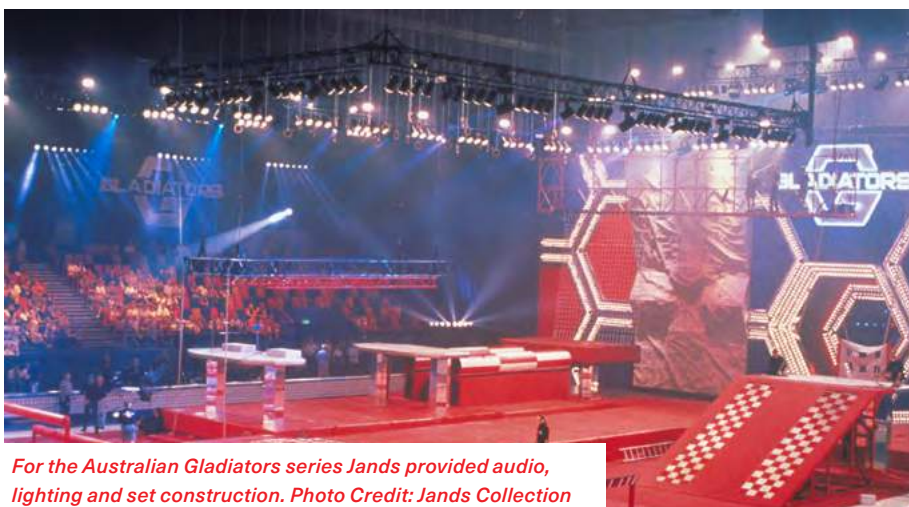
*Jands installation team at Surfers International hotel. Photo Credit: Jands Collection*



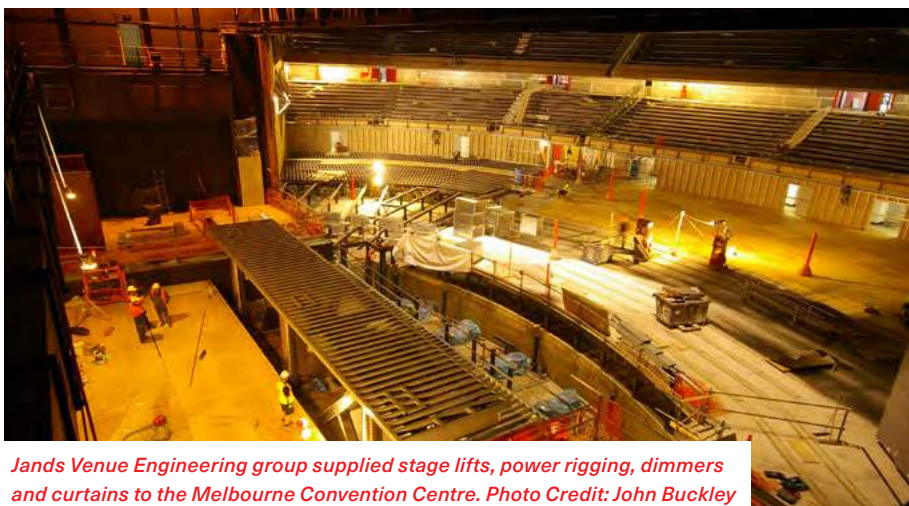
*Jands stand at the Entech trade show 2002. Photo Credit: Jands Collection*



*Jands winches installed at the Arts Centre Melbourne. Photo Credit: John Buckley*



*For the Australian Gladiators series Jands provided audio, lighting and set construction. Photo Credit: Jands Collection*



*Jands Venue Engineering group supplied stage lifts, power rigging, dimmers and curtains to the Melbourne Convention Centre. Photo Credit: John Buckley*

## CHAPTER 6

## Fundraising for Performing Arts Facilities

For performing arts facility managers, fundraising is a relentless part of the job. These facilities require significant ongoing capital to maintain the physical structure, to pursue improvements, and to balance the budget on an ongoing basis.

The development staff of a performing arts facility is relatively well paid (at least compared to others working in the performing arts field), reflecting the importance of their work to the organization, but also the extreme difficulty of raising funds from all sorts of different sources on an ongoing basis, no matter what the economic or political environment. On top of all of that, fundrais-

ing for performing arts facilities are competing for funds with service agencies, churches, and finally, all of this is very

# Running Theatres

**Second Edition**

If you think you could do with a few tips on how to run a theatre, this book will keep you turning the page, and fill in a few blind spots you didn't know you had.

## ABOUT THE BOOK

Running Theatres is a tome all about the ins and outs of running a theatre – hence the name. Much of its content is derived from interviews, conversations and surveys involving several influential theatre managers and other related industry experts.

This is the book's second edition, published in 2020. The first edition of it came out back in 2005.

Its author, Duncan M. Webb covers a vast amount of ground in this 15-chapter book. Some of the highlights include facility operations, programming, financial management, audience development and board development.

The book identifies and discusses concepts, ideas and practices that lead to the best real-world results when it comes to theatre

operations, including, but not limited to, all its various technical aspects.

At 288 pages, Running Theatres is by no means encyclopaedic in scope, but there's a lot of information to digest.

"Nothing is more important in a theatre than getting the lights on the marquee and a show on the stage."

## WHO IS THE BOOK FOR?

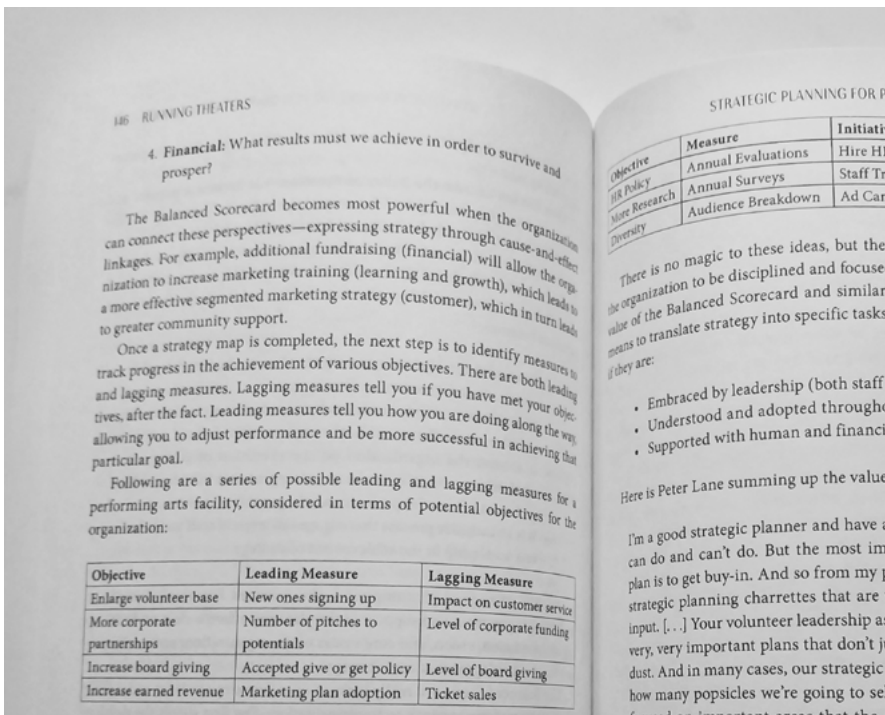
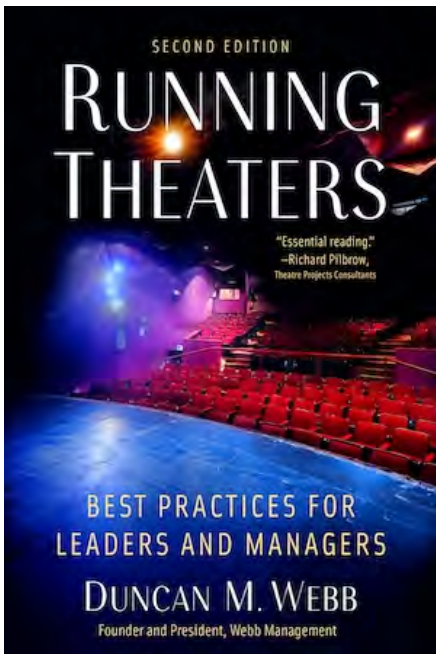
Running Theatres is squarely aimed at theatre managers, technical or otherwise, or anyone who sits on the board of a theatre company, including anybody with a theatre management role or senior position involving the day-to-day running of a theatre or live entertainment venue. Any stakeholder to a theatre such as investors and educators may also derive benefit from reading this book. It would also

be a highly beneficial read for any student studying to be a theatre manager.

"The execution of strategy is often a greater challenge than the development of strategy."

Running Theatres draws upon the expertise of several influential theatre managers and seasoned industry experts. Although it's technically written by a single individual, the book nevertheless contains dozens of expert opinions and working practices. These multiple perspectives make the book less exposed to 'blind spots' that a single author may inevitably possess. Its breadth of perspective is similarly wider than that of any single author.

Having said that, while the book indeed covers a lot of ground and does it well, there are some areas where it occasionally lacks depth. One such area is around the subject of financial management. Given its importance to a theatre



– without which a theatre’s doors would eventually close – perhaps more space could have been dedicated to discussing ways to sell, market and position a theatre. A topic such as stakeholder management, or similar, could also have done with its own dedicated chapter, rather than be sprinkled throughout the book. A theatre manager inevitably wears a lot of hats and is bound to encounter political angst at some point. Navigating these treacherous waters is vital to any theatre manager’s long-term success.

**VERDICT**

Running Theatres is a fascinating book written by someone who does this kind of work (theatre consulting) for a living. Webb’s credibility is further enhanced by his extensive list of contacts, who collectively serve as a ringing endorsement by adding their own experiences to the book’s compelling pages.

Running Theatres offers something different. It’s presented in a format that keeps you from growing weary of the subject, as too many textbooks are known to do. This is no textbook. It’s essentially a guidebook about running a successful theatre, as told by numerous industry experts, and based on decades of real-life experience. It’s organised neatly into 15 chapter topics and distilled down into a coherent 288-page book.

It’s not written as a sequential user manual, featuring dot points and footnotes, but it’s a gold mine of experience and wisdom nonetheless – perfect for its intended audience. Everyone involved in running a theatre should read this book at least once.

“Understanding performing arts audiences and predicting their behaviour is a significant challenge.”

**Scoreboard**

**Readability: 6**

The book is well written, highly informative and entertaining. Considering the book was pulled together largely from interviews, it holds together quite well. Similar books of this nature often read as disjointed and confusing. It’s not a quick read, but it’s well worth the journey; a book some readers will likely open repeatedly.

**Supporting Materials: 9**

In this case, the supporting materials – interviews and surveys – are essentially the backbone of this entire book. More traditional methods of providing supporting materials, such as graphs, charts and diagrams are largely non-existent in this book.

**Relevance: 8**

Although the book was originally written almost two decades ago now, this second edition remains highly relevant. And while Running Theatres is written by a US author with overseas contributors, mainly from the United States, UK and Europe, the book remains highly relevant to Australians and New Zealanders. Some of its practices also apply to live entertainment venues such as conference halls, convention centres and stadiums.

**Usefulness: 7**

A useful book, yes, although I don’t think it’s one that you would use as reference material at work. Running Theatres is the kind of book you would read cover to cover in a few sittings and occasionally re-read as a refresher if you were earning a living in a related role.

**Value for Money: 8 (\$41.90: Amazon)**

At just over \$40.00, Running Theatres is respectable value for a 288-page book, especially when you consider how much work has gone into the construction of its pages. If you’re tasked with running a theatre and need a little guidance or direction, this book would prove invaluable.

**Total: 38 = 4 Stars**

**ABOUT THE AUTHOR**

Duncan M. Webb is the founder and president of Webb Management Services, a management consulting firm serving the arts and cultural industries. Duncan is a management consultant to people who build and operate theatres. He has spent 40 years in the field as a consultant, teacher, speaker, author, and producer. He lives in New York City.

## Innovative Double-Sided Lighting Fixture



# EK ALLIGATOR

Light fixtures boasting a feature list as long as this low-slung reptile appear rarely in our habitat, and the Alligator is versatile indeed. It's a moving bar with infinite pan and tilt, a beam, a wash, and a strobe... and that's just for starters.

The Alligator is a double-sided beam/wash/strobe moving bar with infinite pan and tilt, which technically classifies the unit as a hybrid LED moving head. The front panel of this reptilian wonder features a zoom range of 3 – 37 degrees, which is great for creating wash effects of precise beam projections, while its back features an intense strobe that's ideal for high energy events and performances.

The Alligator is essentially half a DiamondBack on one side and a Collider strobe with less output on the other (for those familiar with these units). It can serve as a beam, a wash and a strobe moving bar, giving the Alligator a vast array of uses and applications.

### THE LIGHT'S CONSTRUCTION

At 27.1kg, the Alligator has some weight behind it, especially when you consider that it's not IP65 rated. Although not the heaviest on paper, and far from a two-person lift, the Alligator is low and wide, making it a little awkward to pick up off the ground (like its namesake!). The pan and tilt locks are a must, and it hangs quite easily with two clamps. For transportation, two Alligators fit neatly in one case.

The Alligator's aforementioned infinite pan and tilt feature moves quickly and quietly, and stops on a dime, which is impressive to witness in person when you consider how big and heavy

its head is. How durable this mechanism will remain over time is a guessing game at this point, but right now the Alligator's infinite pan and tilt is one of the unit's most outstanding features.

### OPTICS, COLOUR & BRIGHTNESS

As mentioned earlier, the front side of the Alligator is essentially half a DiamondBack, comprised of 7 x 60W RGBW LEDs arranged inline, framed by alternating cool-white and warm-white LEDs. The colour temperature is variable, ranging from 2800k all the way out to 8000k, and according to manufacturer's specifications, the front panel emits up to 9,600 lumens.

The rear side of the Alligator, meanwhile, is essentially a Collider strobe, albeit not as bright. It's a 700W LED with RGBW colour mixing. Claimed output on this side of the unit specs out at 18,000 lumens.

Both lights use the same RGBW colour mixing system, making it easier to get matching, uniform colours using the same values. They're aimed exactly 180 degrees apart, making programming for positions fairly straightforward.

### APPLICATIONS & FEATURES

Naturally, a hybrid fixture will have more applications than a non-hybrid model – no great revelation there. Despite having no gobo or animation wheel, shutter kit or prism, the Alligator boasts a large array of features.

The front side features the aforementioned LED bar and alternating WW (Warm White) and CW (Cool White) LEDs around the perimeter. Its substantial zoom range gives the Alligator a ratio of about 12:1, and it's impressive to see how tight the beam is in person, especially

over a long throw. When narrowed all the way in (to three degrees), the light has a square beam. Zoomed all the way out (to 37) it makes for a great effects fixture and doubles up as a respectable wash that remains flat almost all the way across, with no hot spot in the middle.

The back panel is a true LED strobe, featuring a massive 70-degree beam angle, essentially making the Alligator a flood into the bargain. A strobe that offers pan and tilt features is uncommon; a strobe featuring infinite pan and tilt is rare indeed. Frankly, when you put your mind to it, the list of tasks this light can potentially perform is truly breathtaking.

And yet, despite how well the Alligator performs its impressive array of tasks, you still may not want to spec (or buy) this light if you're simply chasing a wash or spot, despite it being advertised as capable of both. You might, however, if you were in the market for a strobe or a bar light for its effects alone.

### CONTROL & PROGRAMMING

The Alligator has five different DMX modes, ranging from 26 to 98 channel modes. If you're going to run an effects-style light, you may as well use the most extended mode your infrastructure will support.

As for protocols, the unit is compatible with both 3-pin and 5-pin DMX as well as RJ45 input and output. You can run DMX, RDM and ArtNet, making the Alligator well and truly up to spec, and on equal footing with other high-end moving lights of today.

It's worth pointing out here that while there are a lot of new high-quality, feature packed LED fixtures coming out, many of these are relatively thirsty on the power draw. Gone are the days where one could hastily assume that a light drew 'next to no power' were it an LED fixture. This fallacy could land you in big



trouble with the Alligator! The reptile draws 920W of power, meaning you can only get two to a single 10A circuit. As a crude comparison, a Martin Mac Viper (a full-sized moving head profile with a discharge lamp) draws 1194W. It's not too far off the power draw of a lot of the moving head profiles from yesteryear. Both the VariLite VL3000 Spot and the Alpha Profile 1200 draw 1200W.

## VERDICT

Although marketed as a wash/beam/strobe hybrid fixture, the Alligator really is the ultimate 'eye candy' light. Overall, it's a fantastic concept that has been very well executed and has the look and feel of a sophisticated, high-end effects light. It's a double-sided moving bar light with infinite pan and tilt, a strobe on one side and half a DiamondBack on the other. What more could you ask for? Individual zoom control of the 7x LEDs would be cool, as might be the ability to break down the strobe into more than seven segments, but this would no doubt increase the cost of the unit.

The double-sided light concept is a unique and distinguishing feature. With the release of the Alligator into the wild, I suspect we're glimpsing the future of the hybrid light.

## FEATURES

- Creative double-sided design provides flexible solutions for different applications
- Up to 9,600lm (front beam/wash panel), up to 18,000lm (back strobe panel)
- Speedy infinite pan/tilt movement
- Motorized wide-ranging zoom of 3° – 37°
- Four dimming curves with 16-bit high-resolution control
- Selectable PWM frequency for flicker-free video
- DMX, RDM and Art-Net control 5

## SPECIFICATIONS

### Light Source:

Front panel: 7 x 60W RGBW 4-in-1 + 280W WW&CW  
Back panel: 700W RGBW

### Lumen Output:

Front panel: up to 9,600lm  
Back panel: 18,000lm

### Lux Output:

Front panel: 52,000lux @ 3M  
Back panel: 800lux @ 3M

Colour Temperature: 2800~8000K

CRI: Ra ≥ 68 DUV: 0.0001 - 0.009

### Wavelength:

Front panel: R: 620nm G: 526nm B: 453nm  
Back panel: R: 623nm G: 526nm B: 457nm

TM-30-15rg/rf: 98/83 TLCl: 70

LED Life: 20,000 hrs

### Beam Angle:

Front panel: 3° – 37°  
Back panel: 70°

### Field Angle:

Front panel: 4° – 51°  
Back panel: 124°

Pan Movement: Infinite

Tilt Movement: Infinite

### Colour Mixing:

Front panel: RGBW+WW+CW  
Back panel: RGBW

Zoom: 3° – 37°

Motorised Strobe: 0 – 30Hz

LED Refresh Rate: 600Hz/1200Hz/2000Hz /4000Hz/6000Hz/25kHz

Dimmer: 4 dimming curves, 0 – 100% adjustable

Mains: 100 – 240VAC, 50-60Hz

Consumption: 920W @ 230V (strobe: 1500W @ 230V) Fuse:

T15A Power Connections: PowerCon In Power Factor: 0.96 @ 230V

Protocol: DMX512/RDM/ArtNet

Data Connections: 3- or 5-pin XLR In/Out for DMX RJ45 In/Out for ArtNet

DMX Channels: 26CH/50CH/84CH/98CH

Display: 2.83-inch TFT

### Housing:

Flame-retardant nylon with black finish

Operating Temperature: 0 – 45°

Cooling: Low-noise fan for forced air

IP Rate: IP20

Dimension: 713 x 244 x 451mm

Weight: 27kg

# A VENUE HERE,

The Esplanade, St Kilda



# A VENUE THERE

## Bigger isn't always better

In my time, I've been lucky enough to professionally grace a lot of the big stages of Australia. That's where the mega stars play, unless they are so popular that they build their own arena. Done a fair few of those too. But the truly memorable shows all occurred in smaller, more intimate venues. Here are a few that I have enjoyed.

It's only natural that I start with my home turf of Melbourne. Early shows at the Seaview Ballroom, Prince of Wales and the Esplanade opened my naive suburban eyes to goths, punks and all manner of weirdos. They all seemed to congregate around St Kilda, and Fitzroy St has long been colourful. It was cheap to live around there in the 80s and was quite a scene. The carpet in the Prince bandroom was stickier than Superglue and load in/out access was a bitch. But I saw legendary gigs from acts as diverse as Harem Scarem, X, Roy Buchanan, Boss Hog and a billion shows with Cosmic Psychos/Hardons/Meanies/Seminal Rats/Bored/Powdermonkeys or any combo thereof.

North of the Yarra, there was a different vibe going on. It was, and still is, a more folky / indy scene than down South and the venues tend(ed) to be smaller. Not only did this mean a different scale of bands but in-house PAs and minimal lighting also meant less opportunities for crew. As a patron, it was great - so many cool venues within walking distance of each other. Punters Club front bar was a regular

haunt, sometimes I even went in to watch the bands. Evelyn across the road and The Rainbow or Lord Newry a short walk away all had a good mix of something worth seeing.

The Tote is a legend unto itself, recently rescued from developers and now under trust to be a venue forever. It still retains the same scungy DIY feel that has launched a thousand acts. Given how off-tap I was during most of my time there, the only interesting stories I have are unpublishable. I will forever cherish memories of that place and am glad that more generations will get the same chance.

I got locked into the bar of The Club one day. We'd finished soundcheck and I went upstairs to make a phone call (pre mobiles then!). The venue manager didn't realise I was in there and deadlocked the door before taking off home for the afternoon. The band waved au revoir through the window and went to dinner while I waited it out, mixing myself cocktails of every spirit in the place. By the time I was released, I was well drunk. We still had a show to do!

Geographically central, the once proudly working-class suburb of Richmond was the musical link between North and South. Before, during and after I lived in that 'burb, The Corner Hotel has always been a mainstay. So many shows, so many memories; Ben Harper and Sharon Jones stand out in the distance of time. A bunch of us hired the rooftop space for a combined birthday party once - most of us dropped several tabs - it was a riot (in my head, anyway).

The Central Club pulled a different roster and could be likened to a beer barn located in town. Smaller venues like the Richmond Club and the Riverside Inn gave a lot of bands starts but also had a lot of empty nights.

Later on, The Old Greek Theatre kicked off and I got to see and work on some brilliant shows like Rollins Band, Einsturzende Neubauten (Blixa screaming: "I need more shopping trolley. I cannot get enough trolley in the mix!"), The Pogues (where I had to manhandle Shane MacGowan onstage and to his mic so he could sing, he was that out of it), and Tackhead (as

a punter, tripping and dancing, then partying with the band afterwards). One time we had to break in to setup (venue manager had lost his keys); another, we waited 5-6 hours for the broken down truck to arrive and then threw together a PA and lightshow in under an hour (I don't know how it either worked or didn't fall on the front row - the sprung floor in that room was murder on tall speaker stacks.)

The Palace - home to some of my favourite gigs ever. I was lucky enough to be crew boss and stagehand when Nirvana exploded there. I've never experienced such a crowd intensity on that level. All three shows were absolutely electric, and I still get chills remembering them decades later. I was also fortunate enough to work with Prince there. We'd just done the arena show at the (then) National Tennis Centre, which was highly choreographed and very slick. The purple one had decreed that the Palace show was to be fun for band and crew and let them all loose on a power funk extravaganza. Again, I'm getting chills - it was that good.

TISM get a paragraph all of their own (they really need a book). Every show that I saw or worked on, there was a different theme. Each increasingly elaborate, taking many hours to set up (on top of normal production duties). Smaller shows early on just had new costumes but as the venues grew in size, so did the concepts. Stringing up washing lines on pulleys from stage to balcony at the Old Greek so 'washerwomen' could pull clothing from machines during the show. By encore, the entire room was covered in full clotheslines. Building a city skyline at the rear of stage mid set at The Palace, only for 'workers' to massacre it with chainsaws while the band played. Damn, they need a book...

North of the border, my best times were had in King's Cross or inner West Sydney. On tour, we'd often stay at the Lansdowne or



Kings Cross, Sydney

Annandale Hotels, doing shows there but also being a home base for Sin City trips. When your bed is only one floor above the stage, it was always tempting to turn one on. We often did just that... The Hopetoun was even smaller but had such a great vibe and was a fave for bands and punters alike. The Cross was always messy, and we'd often end up at The Kardomah Cafe or Springfields - neither great to play in but where all the other crew hung out.

Selinas at Coogee Bay has to get a mention. ~1500 pax with reasonable sightlines and some stellar lineups. I did an Iggy Pop show there that I'll never forget - he launched offstage in a fury of spittle in just the second song. Most of the other shows there have blurred into a mass of tiny snippets, somehow connected but none whole in their recollection.

Of the other states (QLD, SA, WA and Tas), I mainly flew or drove in, did the show and then moved on. The Old Lion in Adelaide was the only regular haunt for me. It was usually where you could catch up with other crew on their own way through town. The Thebarton was an easy regular gig.

Professionally, I spent far more time in the suburban beer barns of the East Coast than funky inner-city haunts. Before pokies destroyed much of the scene, this was where the bulk of pub scale touring acts played, with a steady stream of 13 tonne trucks following each other around the country. Road rivalry or comradeship were big things. In Sydney, most of these jobs involved stairs, ergo many loaders required.

Usually located out of the way, isolated in a sea of cars, these suburban saloons are inherently unattractive. As is the behaviour of some of the patrons - I've seen far more all-ins and carpark brawls in the burbs than any collection of more genteel urban hangouts. The Fosters Carpark Boogie was not a work of fiction.

Arena tours and major festivals ramp up the professionalism and subsequent financial rewards but can lack a bit of the soul inherent in a close and cosy venue. Bigger gigs might be better for working crew, but smaller ones are where they, and the acts they work for, have a platform to get a look in at and maybe even refine their live performance craft. We all have to start somewhere.

# Are you concerned about your mate's mental health?

**FACT: Most Australian tech crew and roadies have attempted or considered suicide<sup>1</sup>!**

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<sup>1</sup>Passion, Pride, Pitfalls Dec 2014

# A Day in the Life of a Record Producer

- THE ANALOGUE TAPES



45 rpm vinyl Magenta 1985

## Snippets from the archives of a bygone era

Usually, 'A Day in the Life' narratives are a snapshot of a single day in someone's enduring profession. However, my stint as a record producer only lasted for one day. It was way back in the analogue world of 1985, when I inadvertently became the record producer of my own songs after booking the leading recording studio in Manila and omitting to engage a producer.

The costly recording session was financed by the nightclub owner where Magenta, one of the bands I managed, regularly performed. We registered the record label CPR, a tongue-in-cheek reference to the first aid technique, but which represented the initials of our surnames; Coleman Posar Records.

The songs were ultimately pressed onto a 45 rpm single vinyl record, which then bore the inscription 'produced from a digital master'. Annoyingly, it was a bad pressing that played out of time, and that digital tag probably accounts for why I've long been sceptical about CDs and vinyl records vying for audio supremacy as they face off in the aisles of record stores. Not only are they both spent technologies, but vinyl has been digitally mastered since the beginning of the 80s. So the whole debate becomes inconsequential.

To arrange the recording session, I drove from my northern residence down to Manila to

meet with Jose Mari Gonzales at his Cinema-Audio Studios. Jose Mari had been a box office matinee idol in the 50s and 60s. Cinema-Audio recorded the finest Filipino artists in the country, including Freddie Aguilar, whose song 'Anak' (young son or daughter) still remains the best-selling Filipino record of all time with over 33 million copies sold worldwide.

Jose Mari invited me to lunch at his residence with his wife and Freddie Aguilar. The lunchtime conversation centred around Freddie's new album cover and the album's anti-Marcos songs. Jose Mari stated that he had been personally warned by Marcos' Commander of Presidential Security, Command, General Fabian Ver, about releasing the album, but he refused to be intimidated. Another topic of conversation was an album recorded at Cinema-Audio by Australia's Paul Kelly and the Dots some four years earlier, in 1981, entitled Manila. The album was released in August 1982 by Mushroom Records (re-

released in 1990) and was produced by Paul Kelly and Chris Thompson. This was the last album by Paul Kelly and the Dots before he reformed under the Paul Kelly Band.

On the studio booking date, I drove the band down to Manila in a rented van. After helping set up in the studio, I entered the isolation booth to observe the audio engineer. It was then that I heard the soul-draining words, "So what do you want?" I had only recorded demos in minor recording studios around Sydney, and these were always one-man operations, from production to engineering to mixing. Here, I had a sound technician staring me in the face, who, like me, had no experience in producing a record. I'd been mixing this band nightly for over six months, but getting that mix down onto two-inch analogue tape in a studio was going to be a daunting task.

I decided to ask the drummer to put the basic drum track down and later do some fills. But



Vinyl and CD face-off

he wasn't comfortable playing without the accompaniment of the band. So after several takes and a few head shakes from the sound engineer, we had to abandon that idea. After lots of experimentation, we virtually did a live mix with the drums, keyboards, bass, and rhythm guitar, with the two lead female singers doing scratch tracks in an isolated booth. I was very fortunate to have two of the best female

vocalists in the country, so when it came to putting the vocals into the mix, the girls did it in one or two takes, and that included doing the harmonies in real time. Then we did overdubs with the keyboards and lead guitar. We then mixed the 16 tracks in the same studio before leaving.

I was a bit green in 1985 about anything digital, but I'm guessing that either the studio or a

third party dumped the mix down onto a hard drive to send to the pressing company. That's how it would have gained its 'digital master' tag. I know there was no digital remixing as is done these days. To me, the analogue, digital thing is a mixed bag because major studios like Abbey Road still use SSL (Solid State Logic) analogue mixers in their main studios, and this is the same the world over. Some SSLs have

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Freddie Aguilar 1985 Album



Jose Mari Gonzales  
Cinema-Audio studio owner

built-in DAW control and automation, and SSL's new Origin is a pure analogue console that fits into today's hybrid workflow, where analogue mixers are married to digital workstations.

In a 2011 interview with Mark Lizotte (Diesel), I asked him about analogue and digital recording.

"It's funny, you know, our first record in Memphis (Johnny Diesel & the Injectors, August 1988) was done on a Trident, which is a big, beautiful English board. But that went onto a Mitsubishi 32 track digital machine, 16 bit. When I ended up finishing the record with Don Gehman, we transferred it over to the analogue tape. Was there a big difference? I don't remember going, 'Oh, that's better now!' When I listen to that record, it's a great sounding record, but it's not like I can go, 'Oh listen to that analogue tape!' I just think that we've got to stop blaming our tools. You know, digital stuff sounded pretty good 20 years ago, so what's the problem now?" he said.

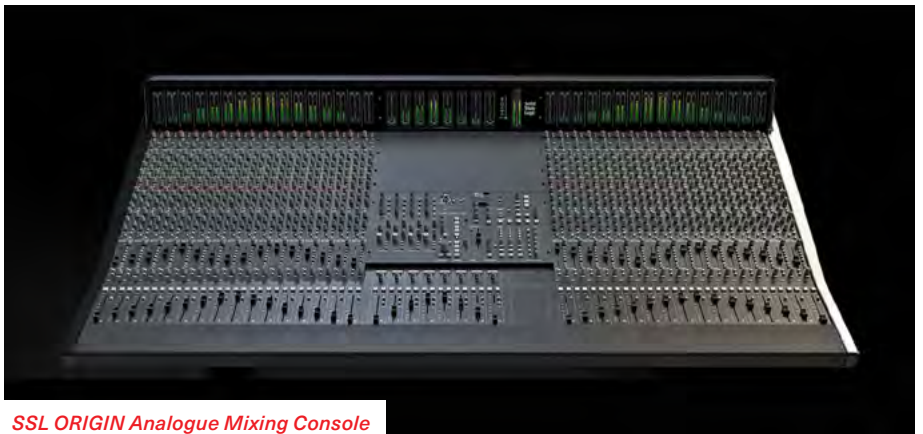
And in a 2012 interview with Ross Wilson (Daddy Cool, Mondo Rock), I asked him what his role as the producer of Skyhooks was, and he basically said he was a good listener. "I'm not a knob twiddler. For instance, with Skyhooks, which was the first big production job I'd ever had, I was more of an interpreter, and he (the sound engineer) would go and do the work. We got into this roll where I'd just say something and we'd discuss it, and he'd go bang, bang, bang, rather than me leaning over the desk and twiddling things and wasting time," said Wilson.



Magenta 1985



Paul Kelly and the Dots Manila Album



SSL ORIGIN Analogue Mixing Console

Something that haunts me to this day is the fact that I played Jose Mari Gonzales a demo tape of other material I had written for Magenta, and he offered to manage the band. He had the number one studio in Manila and enormous contacts in the music and recording industries. This could have rocketed the band to national stardom and even launched my songwriting career. But, alas, for fear of losing control of the band, I declined. Sometime after the 1986 revolution, which deposed the Marcos regime, President Corazon Aquino appointed Jose Mari Gonzales director of the Bureau of Broadcast Services.

When we eventually got the vinyl pressings, I rang a number of Manila radio stations to try to get some airplay. Here, there were no surreptitious backdoor payola deals; it was all done up front, even over the phone. The radio stations would tell you their schedule of payola fees to get your record played. It was all too dodgy, so we sold the singles from a merchandising table in the club where the band played. Up until the end of 1986, when I left the club, we had only sold a total of 37 copies.

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