



LIGHTING | AUDIO | VIDEO | STAGING | INTEGRATION

ON TOUR

MUSE, BJÖRK,
HUGH JACKMAN,
AND PENDULUM

THE ENTECH ISSUE

YOUR FULL 12 PAGE
GUIDE TO ENTECH
ROADSHOW INSIDE!

NEWS

CMG's new
touring arm buys
Meyer Sound LEO

ALIA FireAid
raises \$60K!

PAVT ends 28
year relationship
with ClearOne

ChamSys for
Resolution X

REGULARS

Listen Here:
Andy Stewart

Jenny Barrett
covers NZ

John O'Brien –
Industry Insider

Tech Talk with
Simon Byrne

Dunc's World by
Duncan Fry

ROAD TEST

EAW Radius
Shure TwinPlex

ROADSKILLS

Michael Bublé
Cold Chisel

V!OX 205

NAS
nas.solutions



60° x 60°



100° x 100°



**THE MULTIPURPOSE
POINT-SOURCE**

dBTechnologies

Axient® Digital

RELIABILITY IS IN THE AIR.



With outstanding signal quality in even the most complex, congested environments, Axient® Digital ensures maximum stability, range, and clarity for uncompromising audio — anywhere, every time.
Learn more at jands.com.au

*From transducer to analog output, in standard transmission mode.

© 2018 Shure Incorporated



SHURE



Distributed by

JANDS

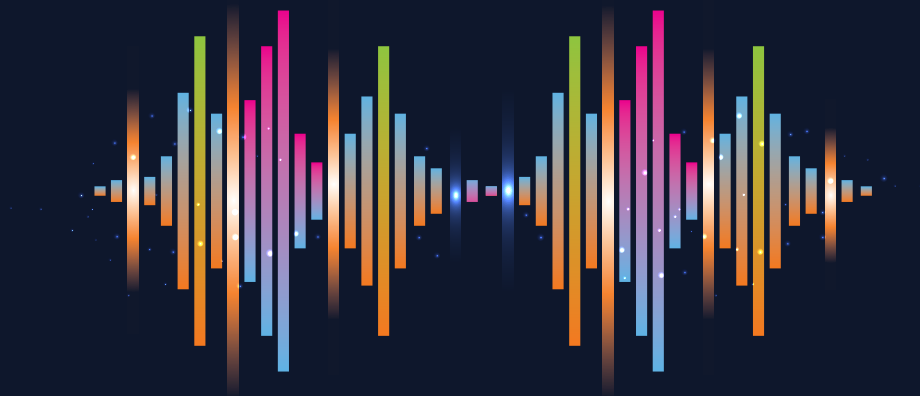
www.jands.com.au

see us at

ENTECH
ROADSHOW



DON'T MISS THIS CHANCE TO MEET THE **AMBER TEAM**
AND ASK THEM ABOUT ALL THE
NEW PRODUCTS AND BRANDS IN **OUR RANGE.**



MACKIE RADIAL NTI SURGEX WILLIAMS AV
AC INFINITY VAN DAMME NEUTRIK RENKUS-HEINZ
CANARE SOLID STATE LOGIC DIGITAL PROJECTION
JTS PRIMACOUSTIC APOGEE DPA MICROPHONES

PERTH ADELAIDE SYDNEY MELBOURNE BRISBANE

MARCH 2020



ambertech.com.au

CONTENTS

NEWS

CMG's new touring division invests in flagship LEO Sound System	6
ALIA FireAid auction raises \$60K!	6
PAVT ends 28 year relationship with ClearOne	7
Epson projects Yabarra Dreaming in Light at the Adelaide Fringe Festival	7
Novatech reveal the magic behind Big Bash League NYE	10
Resolution X Invests in ChamSys QuickQ Consoles	10

NEW GEAR

THE ENTECH ISSUE

Your full ENTECH Roadshow Showguide and preview!	24
--	----

FEATURES

Women in AV: Kat Harding, Freelance Video Tech by Toni McAllister	60
Case Study: ClimbFit Climbing Gym, Kirrawee NSW	62

ON TOUR

Proteus protection on wet Muse stadium shows	22
Björk's Cornucopia Tour	38
Hugh Jackman's The Man. The Music. The Show.	50
Pendulum's 2019 Tour	57

ROADSKILLS BY CAT STROM

Michael Bublé	18
Cold Chisel	40

REGULARS

Listen Here: Complicated Mixes Where to Start, How to Finish – Part 1 by Andy Stewart	36
Auckland Embraces Digital Art by Jenny Barrett	46
BogArts - "A loose collective of loose units" by John O'Brien	54
Tech Talk: IP Ratings: What do they mean? by Simon Byrne	64

ROAD TEST

EAW Radius by Richard Howey, Audio Dynamite Limited	68
Shure TwinPlex TH53 by Nat Devilliers	71



* Cover Photo – Muse.
Photo by Louise Stickland.

* Contents Photo – Cold Chisel.
Photo by Louise Stickland.

CX is published by VCS Creative Publishing Pty Ltd
PO Box 1045, Ascot Vale, VIC, 3032
Phone +61 (0)407 735 920
Email jason@vcscreative.com

Editor and Publisher: Jason Allen
Layout: mark wood design – Mark Underwood & Alisha Hill
All contents COPYRIGHT CX Network Pty Ltd 2020
Nothing herein to be reproduced in any format without
express written consent.



PROFESSIONAL

WE LISTENED, NOW IT'S YOUR TURN

- ✓ Compatible Rigging System with all VTX-A Series Products
- ✓ New JBL Transducers for Best Sound Quality and Output
- ✓ Multiple Horizontal Coverage Options (90°|110°|120°)
- ✓ Best-in-Class Rigging System for Fast and Safe Deployment
- ✓ Compact, Truck-Friendly Dimensions
- ✓ Full-Range of Innovative Accessories
- ✓ Complete Solution Including Software and Amplification
- ✓ Small-Format Application Subwoofer
- ✓ Improved Linearity and Wider Dynamic Range
- ✓ Full Series Compatible Rigging
- ✓ Reduced System Amplifier Requirements

VTX: A-SERIES



A8
NEW



B18
NEW

Hear it in
action at

ENTECH
ROADSHOW

Or register your interest in the next
VTX demo day, email audio@cmi.com.au

cmi
Audio

cmi.com.au
ph. (03) 9315 2244

[@jblprofessionalaustralia](#)
[@jbl_professional_au](#)



JBL VTX A8 Line Array
WINNER
2020 NAMM TEC Award
(Sound Reinforcement Category)



CMG's new touring division invests in flagship LEO Sound System

The arrival of the compact MINA curvilinear array in Wollongong, south of Sydney, in 2014 marked the beginning of a new era for Meyer Sound in Australia. A year later in 2015, newly established event production company CMG Audio Visual made a second investment in the iconic audio brand with the introduction of Australia's first LEOPARD Linear Line Array and 900-LFC sound system, following the global debut of the new generation array.

In 2018, CMG's passion for delivering incredible audio experiences and commitment to the Meyer Sound family of products strengthened further with the launch of a dedicated Meyer Sound rental house, including the addition of the mid-size LYON Linear Line Array and 1100-LFC system. In the 24 months since, these Meyer Sound systems have travelled across Australia and internationally to an exceptional amount of praise and client feedback, further cementing a strong preference for Meyer Sound products by many in the live performance industry.

CMG have now announced their largest and most exciting acquisition to date – the purchase of Meyer Sound's flagship LEO Linear Line Array System – an advanced solution that is perfectly suited to providing

large-scale sound reinforcement for stadiums, arenas, outdoor festivals and public events.

General Manager of CMG, Tobi Pinazza, said "We are very excited by the opportunity to provide this top-tier system for both local and international touring productions. The arrival of LEO in Australia completes the offering of the entire product family in the region and we look forward to the next phase of our development as an Australian owned business. We are privileged to receive such amazing support from the Meyer Sound team locally and across the world and particularly want to acknowledge the hard work of Chris D'Bais (Sales Manager – Oceania and Southeast Asia at Meyer Sound Laboratories, Inc.)."

The order was initially placed to coincide with the arrival of Metallica's six Australian stadium shows on their WorldWired Tour in late 2019, supplying Sydney, Melbourne, Brisbane, Adelaide and Perth, however due to tragic circumstances the tour was postponed.

Approaching five years in business, CMG is confident that the time is right to bring LEO to the Australian touring market, with more than 10 tonnes of additional Meyer Sound equipment arriving at the company's

headquarters in Wollongong recently.

LEO made its first appearance at two sold out shows at Qudos Bank Arena for Harvest Rain's Wizard of Oz Arena Spectacular over the Australia Day long weekend, supplementing the existing LYON and LEOPARD touring system as the show added more seating.

CMG's national presence as a top-tier supplier of corporate Audio Visual services and more recent expansion into the touring system and live entertainment market will be further enhanced by the flexibility, scalability and ultra-low distortion of the complete Meyer Sound LEO Family. The addition of LEO bolsters CMG's inventory to more than 320 individual Meyer Sound array, point source, monitor and low frequency control elements.

In line with the launch of one of Australia's premier sound systems, CMG is now offering a special introductory offer on LEO rental to interested rental partners, tour promoters and production managers for a strictly limited time. For all Meyer Sound rental enquiries, please contact CMG at touring@cmgav.com.au or via 1300 814 568.

www.cmgtouring.com

ALIA FireAid Auction Raises \$60,101!

2020 marked the 20th anniversary of the Australasian Lighting Industry Association, now known as simply ALIA. Plans were afoot for a few celebratory events but then the devastating bushfires occurred. Those plans were abandoned in favour of holding an online auction to raise money for the charities RSPCA Bushfire Appeal and BlazeAid.

Production companies were already helping out by supplying crew and gear for charity

concerts, so ALIA reached out to the actual manufacturers to help. From all over the world, lighting gear was donated, and ALIA were astounded by the generosity and support.

At the end of the auction, \$60,101 was raised to be split evenly between the two charities.

The following suppliers kindly donated gear: ACME, ADJ, ArKaos, Artistic Licence, Avolites, Chauvet DJ, Clearlight Shows, Creative

Productions, Design Quintessence, Elation Professional, LightShark, Event Lighting, Firefly Lighting, GLP, Green Hippo, Griven, High End Systems, LSC Lighting Systems, LumenRadio, Martin, Phantos, Pharos, Robe, Show Technology, Smoke Factory, Theatre Safe Australia, TMB, Touring Industries, Wireless Solutions and Zero 88.

Special thanks to all of the local distributors for ensuring the gear got to the lucky winners.

PAVT ends 28 year relationship with ClearOne

Australian and New Zealand distributor PAVT met with long-term technology partner ClearOne at February's ISE tradeshow in Amsterdam. The outcome of the meeting saw PAVT deciding to end their distributorship. PAVT's Managing Director Graeme Stevenson issued the following statement:

"Today, 12 February, 2020, Production Audio/Video Technology Pty. Ltd, (PAVT), offered our resignation as the Master Distributor of ClearOne Communications (CLR) for the territories of Australia and New Zealand. This came after a significant review of the position of ClearOne in our market, in conjunction with key stakeholders throughout the entire supply chain.

We are currently in negotiations with ClearOne management for a smooth release of stock and support.

PAVT is proud of our 28 year relationship with ClearOne, starting in 1992 when it was known as Gentner. We enjoyed market dominance, the ability to lead an industry in both technology and its application, and were privileged to work with world-leading institutions and facilities. Increasingly we feel our territory's needs and ClearOne's direction are diverging, and that our energy and resources would better service our market if deployed elsewhere.

To our customers that have supported the ClearOne brand in the past, we thank you. We will continue to support you with the same passion, technical knowledge, and integrity as always.

During our time with ClearOne we have formed many great friendships and look forward to that contact being continued. After all, our industry is one of passion and people. Fulfilment of growth goals both personal and financial come from positive, collaborative interactions. These are the important things in life.

The directors and staff would like to thank ClearOne and its current and former staff for supporting us in our endeavours and wish them all the best moving forward."



ClearOne.



The Adelaide Fringe festival has gone from strength to strength and is synonymous with cutting edge artists and amazing audience experiences. This year Epson and supporting partners including Novatech and Monkeystack, are lighting up and projecting Yabarra - Dreaming in Light, the festival's signature installation and vision of cultural creative producer Karl 'Winda' Telfer.

Yabarra - Dreaming in Light is a unique, indoor, immersive cultural experience which educates all who experience it as it tells the dreaming story of Tjirbruke, an ancestor of the Kurna people and of the creation and country at Tandanya.

The installation uses a wide range of Epson projectors from the EV-100 LightScene to the flagship 25,000 lumen EB-L25000UNL laser projector. Epson and the installation's team seamlessly integrated the full potential of these projectors with the creative vision behind Yabarra to realise a culturally immersive and sensory experience.

Yabarra - Dreaming in Light also leverages Epson's L-Series and their laser light source projection technology to deal with challenging installation angles and set-and-forget locations for the duration of the festival.

Monkeystack Director and creative partner on the installation Justin Wight said, "We are very proud to have partnered with the Adelaide Fringe, Epson and the other project partners to create Yabarra - Dreaming in Light. Working with Epson projectors has meant that we are able to push the boundaries of what is achievable in immersive storytelling. Their precision, response and clarity of colour and fidelity of moving image has produced a world class experience in a challenging indoor space."

Leko Novakovic from Novatech, a key partner in the design and installation of the Epson projectors, added, "We've always enjoyed what a creative collaboration can bring to a project and believe that using the cutting edge technology of Epson's projectors significantly enhances the effectiveness of storytelling. Yabarra shows how conventional equipment such as Epson projectors can be used to create unconventional images. The results are quite magical."

Heather Croall from the Adelaide Fringe concluded, "At Adelaide Fringe we see First Nation's participation as vital to the arts, I'm so proud of our organisation's signature project for 2020, Yabarra - Dreaming in Light, which speaks to this core value."



Australia's One-day AV Expo

ENTECH

ROADSHOW

NEW

- ALL DAY DEMO AND TRAINING SESSIONS ON THE FLOOR
- 10AM: THE AV HOUR OF POWER! FAST TECH SESSIONS & COFFEE
- LIGHTING SHOWCASE WITH ALEX HUGHES
- PA SHOWCASE WITH JULIUS GRAFTON

AND ALL THE THINGS YOU LOVE,
ONE FULL DAY - IN YOUR CITY!

ARRIVE FROM 9.30 FOR COFFEE
AND HOUR OF POWER

SHOW OPENS AT 11AM

RAPCOHORIZON

CABLE ROLLING CONTEST

The winner in each city gets the RapcoHorizon BLOX Series prize pack which includes:

- 1 x Rapco Horizon BLOX - XLR CABLETESTER
- 1 x Rapco Horizon BLOX - 20DB PAD
- 1 x Rapco Horizon BLOX - SIGNAL ISOLATOR
- 1 x Rapco Horizon BLOX- LAPTOP COMPUTER INTERFACE

Total prize value is over
RRP \$400

ENTECH 2020 DATES

PERTH THURS 5 MARCH PCEC	ADELAIDE TUES 10 MARCH ADELAIDE SHOWGROUND	SYDNEY THURS 12 MARCH HORDERN PAVILLION	MELBOURNE TUES 17 MARCH MCEC	BRISBANE THURS 19 MARCH RICC RNA
---------------------------------------	---	--	---	---

REGISTER FREE NOW AT WWW.ENTECH-ROADSHOW.COM

REGISTER AT WWW.ENTECH-ROADSHOW.COM TO BE IN THE DRAW FOR THESE GREAT PRIZES!



AMBER TECHNOLOGY AUDIO TOOLKIT

TOTAL RRP \$1,805 INC GST

The Audio Toolkit is packed with goodies valued at \$1805:

- Neutrik Dante I/O interface
- Ambertec Cables Y-split 3.5mm to 2x XLR Male, 1.5m
- Ambertec Cables Y-split 3.5mm to 2x 6.35mm TS, 1.5m
- Ambertec Cables Microphone cable, 2m
- Mackie 48v Phantom Power Supply
- Mackie Cable Tester
- Mackie Professional Closed Back headphones
- Radial MIX 2:1 Passive balanced mixer
- Radial Passive Direct Box for Bass and Keys
- Radial Balanced Signal Driver PSU Included

Proudly contributed by Amber Technology
ambertech.com.au



CLICKSHARE CONFERENCE

TOTAL RRP \$2,700 EX GST EACH

- ClickShare Conference works with ANY COMPUTER, ANY UC PLATFORM, ANY PERIPHERAL
- Click to share your device with the meeting room display instantly
- Receive camera stream from the moment the button is plugged in – any USB Audio & Video device/s.
- Team collaboration – view shared content on your own device
- Toggle the application window or desktop that is shared.
- Fully compatible with the new ClickShare Collaboration App.

Proudly contributed by Audio Visual Distributors
www.avdistributors.com.au



EVOLVE 30 COLUMN SPEAKER & MIXER

TOTAL RRP \$2195 INC GST EACH

- MIX IT UP WITH EVOLVE 30M: 8-channel mixer, 7-band graphic EQ, extensive DSP, studio quality effects (30 presets e.g. delay, flange, reverb), 4x XLR/TRS mic/line inputs, 1x XLR/TRS stereo line input, 1x RCA, 1x 3.5 mm stereo, 1x Hi-Z instrument input, independent channel aux, foot switch input, professional-grade preamps and mix functions. Bluetooth streaming and app control plus 120 degree horizontal and 40 degree vertical throw make this the most feature-rich, performance column loudspeaker in its class.

Proudly contributed by Bosch Communications
www.boschcommunications.com.au



SWEFOG K1 HAZER + 1 PACK OF FLUID

TOTAL RRP \$2865 EX GST EACH

- The K family of hazers are designed to be lighter and easier to use than its predecessors whilst maintaining SweFog's high standard. The K1 Hazer is a water based haze generator with a quick heat up time and amazing output to fluid use ratio. One BiB fluid container provides up to 75 hours of continuous operation. The SweFog design ensures quality output and smooth, linear fog distribution at all levels of operation.

Proudly contributed by Clearlight Shows
www.clearlight.com.au



EF-100 ULTRA-COMPACT PORTABLE LASER PROJECTOR

TOTAL RRP \$1,699 INC GST EACH

- Plug-and-play with this stylish, compact and portable laser projector. Wherever you are, you can project on to almost any surface and in almost any direction, even in daylight. It's light enough to take out on adventures, while its compact footprint means you can neatly store it on a bookshelf. It's versatile so you can show content from a phone, streaming device, laptop, games console, and more.

Proudly contributed by Epson Australia
www.epson.com.au



EVENT LIGHTING BM1S50W BATTERY MOVING HEAD SPOT

TOTAL RRP \$1490 INC GST EACH
(2 PER CITY)

- The Event Lighting BM1S50W is a revolutionary Battery Moving Head Spot. This fixture has a 50W White LED source, 10 degree beam angle, colour wheel, gobo wheel and built-in wireless DMX making it completely wireless! It is capable of operating for up to 8 hours in normal use with the option to add an external battery.

Proudly contributed by Eventec
www.eventec.com.au



APS12/10A AUTOMATIC POWER DISTRO

TOTAL RRP \$1,995 EX GST EACH

- The APS is the smarter power distro for audio, video and lighting. Full colour 3.2" touch screen with 3phase voltage/current display, RCBO per channel, dropped Neutral and over-voltage protection plus control via touch screen, contact closure (GPI) or RDM. Unlike conventional distros, LSC's unique soft-start technology allows large numbers of switch mode power supplies to be run from each output without nuisance tripping of the local or upstream RCDs and circuit breakers.

Proudly contributed by LSC Lighting
www.lslighting.com.au



GLENSOUND PRIZE PACK

TOTAL RRP \$911.31 INC GST EACH

- The tm stagetec systems GlenSound Prize Pack includes: The new GlenSound DIVINE, a PoE powered network audio loudspeaker featuring 4 selectable audio inputs with auto functions. It is Dante/AES67 compliant and boasts the latest low noise, high output class D power amplifier. Plus, an AoIP22 two channel, bi-directional audio interface. It's designed to easily interface existing analogue equipment to Dante/AES67 network audio systems. Designed for OB, theatre and location applications.

Proudly contributed by tm stagetec systems
www.tm-systems.com.au



DJ POWER R-7 CONFETTI GUN PRIZE PACK

TOTAL RRP \$1,066 INC GST EACH

- The five-output electric confetti gun uses compressed air as power, safe and pollution-free, with LED flashing lighting in the tube centre. Extremely eye-catching! The DJpower R-7 Confetti Gun Prize Pack also includes a 3x Confetti Cartridge Set.

Proudly contributed by ULA Group
www.ulagroup.com.au

LIGHTING SHOWCASE

See the latest LED wash, beam and profiles demonstrated

PA SHOWCASE

Hear the newest PA systems demonstrated one by one

ENTECH 2020 SPONSORS



Happy Hour sponsored by Chameleon Touring Systems



ENTECH Registration sponsored by MadisonAV



Entech Cafe sponsored by H2 Insurance



Entech PA Showcase sponsored by Waves (distributed by Sound and Music)



Entech TV sponsored by Eventec



Cable Rolling Contest sponsored by RAPCOHORIZON

ENTECH 2020 EXHIBITORS



Novatech reveal the magic behind Big Bash League NYE

"Who lives in a pineapple under the sea?" is not a question usually posed at the cricket, but when Spongebob Squarepants turned 20, Nickelodeon teamed up with sports agency TLA Worldwide to celebrate his birthday at the now-iconic Big Bash League New Year's Eve fixture at Adelaide Oval. Since 2014, the after-game celebration has become the party to be at, with the entertainment growing more spectacular each year.

Long-term production partner Novatech Creative Event Technology (NCET) outdid themselves on Dec 31, as the Adelaide Strikers took on Sydney Thunder. Video and content gurus Campfire Content put together a spectacular video programme that sent the beloved children's character in to bat and bowl, in a massive, immersive show that completely took over Adelaide Oval just seven minutes after the game concluded.

The Oval's 360 degree boundary LED screens, two levels of parapet LED screens, and three enormous LED vision screens were unified into a vast content canvas. Not satisfied with that, Novatech designed, sourced, built, and rolled out four 30 metre by 17 metre projection surfaces onto the field itself – no mean feat for material weighing 120 kg, in seven minutes, positioned to the millimetre. Four Barco UDX32K 4K projectors were rigged at the rear of the grandstands to project onto the surfaces, using every pixel of their 4K capability to create a perfect image.

The backbone of the show was NCET's disguise 4x4pro media server, which handled playback, control, screen alignment, and timecode. Keeping everything in sync, the 4x4pro sent timing, triggers, and content to the Oval's Ross Video system, to NCET's grandMA3 full-size and grandMA3 light lighting desks, and to the pyrotechnics crew

who set off fireworks on cue with the video.

Some new kit in the NCET toolbox, Lightware UBEX optical scaling extenders, were used to send the 4K UHD@60Hz 4:4:4 video content latency-free across the oval's fibre network, with eight units used to get the signal to and from where it needed to be, creating an ad-hoc and completely scalable video matrix system. "Lightware have really nailed it with UBEX," enthuses NCET's managing director Leko Novakovic. "We managed to purchase the first units of UBEX in Australia, and I'm totally thrilled with their performance. It's become clear to our team that they're a product that you have to own if you're serious about video, and we intend to purchase another eight units."

A huge lighting rig consisting of six prebuilt trusses fitted with turf-friendly tyres were rolled out during the changeover. Each truss was 12 metres long, and sported Claypaky Sharpys and Sharpy Pluses, along with Vari-Lite VL400s fitted with custom Spongebob full-colour gobos. These were used to project into the white domes of the Oval's five roof arches, in time with the video content, providing a cost-effective alternative to full video projection. Supplementing the trusses on the ground were pre-rigged Vari-Lite VL3500 spots and washes and GLP Impression X4 Bar 20s, hidden behind LED screens and the Oval's sight screens. Art-Net distributed over the venue's converged network kept everything running smoothly.

The final pieces of the puzzle were Riedel MN Compact Pro integrated video, audio and data routers used to get signal onto the ground, while the 32 crew communicated clearly using Riedel Bolero wireless comms. And that's how six truss pods, four projection surfaces, and 16 2.4 metre wide inflatable balls that



were thrown into the crowd, all hit their marks within seven minutes! "Spongebob Squarepants is not the first character that comes to mind when you think of cricket," admits Leko, "but the BBL, TLA Worldwide, and Nickelodeon wanted something cool and different. With some clever design and fun new tech, I think we hit the brief for six!"

Resolution X Invests in ChamSys QuickQ Consoles

"We were looking for an easy to use reliable hardware based console, which would suit the applications that require between one to four universes of DMX control," explains Tim Hall, Managing Director at Resolution X. "Something which would have an intuitive user interface for new operators and provide an extensive feature set for the experienced programmers on small to mid-scale shows."

After a thorough evaluation of a range of small form factor standalone consoles, their choice landed on the award winning ChamSys QuickQ consoles, with an initial purchase of four QuickQ

20 and two QuickQ 30 consoles, which are now available from their Melbourne and Sydney locations.

"The QuickQ 20 and 30 offered great balance between simplicity and power, which will allow us to use them on both our own production shows and for dry hire. The consoles are compact, but they have a large inbuilt touch screen, so there is no need for an external monitor on many jobs. The mobile-like interface leads you through setup, programming and operation, making it easy to use even for new operators," comments Tim on their key

selection criteria. "We put our shortlisted consoles in our training room and sent operators in to see how far they could get without prior knowledge of the platform, and QuickQ came out on top."

"Having the same substantial fixture library and compatible show files with the larger ChamSys MagicQ console range was a big plus when it came down to decision time. We always consider how any item will fit into the systems we provide to our customers, so the ability of these small consoles to use DMX over Ethernet protocols means we can easily maximize their output by sending them out with an appropriate ArtNet, sACN or Pathport node, making them an ideal addition to the ResX production and dry hire inventory," adds Tim.

For more information contact:
hire@resolutionx.com.au

PLEASE RECYCLE YOUR OLD MIXER RESPONSIBLY



The third mixer based on our 96kHz XCVI FPGA engine, Avantis puts all our next-generation technology in a standalone 64 channel / 42 configurable bus console, with dual Full HD touchscreens, a super-flexible workflow with Continuity UI, extensive I/O options, add-on processing from our flagship dLive mixing system, and a rugged full metal chassis.

Step up to Avantis. Leap ahead of the curve.

&
avantis

ALLEN & HEATH
allen-heath.com/avantis

EXPERIENCE AVANTIS AT THE
ENTECH
ROADSHOW

Crowd Mics Online

Biamp is extending the use of Crowd Mics to remote locations with Crowd Mics Online. The system transforms every smartphone into a personal microphone and interactive response system via a free iOS or Android app. The new version now lets geographically diverse audience members use their smartphones to connect with the event presenter as if they were in the same room. Attendees anywhere can ask questions by voice or text and participate in real-time polls via their smartphones. Both the attendee app and moderator interface will be translated into 20 languages.



Community LVH-900 Beamforming Venue Horn

Biamp's Community LVH-900 large-format, arrayable point source loudspeaker is engineered to serve as a primary loudspeaker for arenas, theatres, stadiums, houses of worship, and other large venues. Its beamforming capabilities allow system designers to modify the coverage pattern of a single loudspeaker, or array of loudspeakers, without having to change out the physical box. Each LVH-900 loudspeaker has four 12-inch LF drivers, three Biamp Community M200 midrange compression drivers, and four 1.5-inch HF compression drivers. All drivers integrate into a single tri-axial waveguide that fills the entire 36 x 31-inch face of the enclosure, providing pattern control to below 400Hz. The LVH-906 and LVH-909 offer 60 or 90 degrees of fixed horizontal dispersion, respectively, with each allowing vertical dispersion beamforming ranging from 60 to 20 degrees. Available in indoor and outdoor models.



TesiraCONNECT TC-5D

TesiraCONNECT TC-5D bridges AVB and Dante networks in AV solutions. TC-5D is designed to support a range of applications, from a Dante enterprise backbone to bridging multiple Biamp conference rooms, or solutions combining Biamp Tesira products with common Dante devices. It comes with five network connections, four of which are PoE+-powered RJ-45 ports that support single-cable connectivity. An additional unpowered RJ-45 port is included to easily pass all signals back to a Tesira DSP. For more complex installations, integrators can daisy-chain up to four TesiraCONNECT devices. The TC-5D integrates with Biamp's SageVue management and monitoring system.

Australia: Jands www.jands.com.au
or (02) 9582 0909
New Zealand: Jands NZ jands.nz
or 021 674 601



NEW GEAR

Sennheiser HD 25 Light

Using HD 25 capsules, the new Sennheiser HD 25 Light headphones combine the sound signature of the original with a simpler headband design. Lightweight at 120g, they feature a dual-sided, 1.5 m long, detachable cable. Made for high noise environments like monitoring and DJing.

Australia: Sennheiser
en-au.sennheiser.com or 1800 648 628
New Zealand: Sennheiser
en-nz.sennheiser.com or (09) 580 0489



ClickShare Conference

ClickShare Conference combines remote communication with wireless collaboration to enable easy wireless conferencing. Use your preferred device to connect wirelessly to the room cameras, microphones and soundbars. Designed for huddle spaces and meeting rooms, it incorporates interactive features like annotation, blackboarding and touch back support. High security standards and network integration included for enterprise deployment.

Australia: Barco Systems
barco.com or +61 (0)3 9646 5833

QSC AD-P.HALO

QSC's AD-P.HALO is an integrated SUB/SAT pendant loudspeaker system featuring an integrated 6.5" subwoofer and four 2.75" transducers in a single enclosure. It's ready to install right out the box and 200 watts RMS capable. The Halo are designed to integrate aesthetically with QSC's other AcousticDesign Series loudspeakers (ceiling-mount, pendant-mount and surface-mount) and sonically with Q-SYS network amplifiers or QSC DSP-enabled amplifiers, refining the tuning process.

Australia: Jands www.jands.com.au
or (02) 9582 0909
New Zealand: NSL www.nsl.co.nz
or (09) 913 6212



Laser Display Solutions

EPSON
EXCEED YOUR VISION



Designed for Exceptional Performance

Epson large venue display solutions take image quality to new levels with game-changing laser light sources, flexible installation options and outstanding resolutions. Create powerful images with outstanding reliability and minimal maintenance that are ideal for large auditoriums and staging & rental applications.

For more information visit

www.epson.com.au/LaserProjectors



NEW GEAR



Eclipse FS LED Profile

Eclipse FS is a full-colour ellipsoidal LED profile, designed to output a full range of pastels, saturates and whites, both with or without gobos. 91x3W of RGB + Lime ellipsoidal LEDs pair with HD dimming for full control. It uses high definition optics for sharp focus and gobo projection. The extensive colour palette is mixed in RGB + lime for full colour. White presets are available from 2.700 K ~ 10.000K. The FS LED profile accepts industry standard accessories.

Australia: Show Technology showtech.com.au or (02) 9748 1122

New Zealand: Show Technology www.showtech.com.au or (09) 869 3293



Kali Audio WS-12 subwoofer

The WS-12 is a 1000 Watt, 12-Inch subwoofer ready for both studio and live work. Can be used in the studio as a companion subwoofer to Kali's Lone Pine and Independence monitors, on the road with sturdy construction or for use in surround mixing applications. +/- 3 dB lower frequency range at 30 Hz, with -10 dB frequency response down to 23 Hz. Peak SPL is 123 dB. DSP features include selectable crossovers, with gain adjustment for room position, and polarity inversion. Specifically designed to be portable enough to disconnect and transport in a small car.

Australia: NAS

nas.solutions or 1800 441 440

New Zealand: NAS

nz.nas.solutions or (09) 414 4220

Dante
SPOKEN HERE



A164D Wall LCD & A168D Stage

The A164D Wall LCD is a 16 input 4 output I/O Expander using Dante, designed to provide fixed, additional I/O anywhere on a network. It has 16 Mic Preamps on XLR inputs with Phantom Power status LEDs and four XLR Line Outs with direct preamp control from the 4REA4 controller software. It can run at both 48K and 96k sample rates and it is AES67 compatible. The A168D Stage is a portable version of the same unit, allowing temporary I/O drops anywhere on the network.

Australia and New Zealand: Group Technologies -

grouptechnologies.com.au or +61 (03) 9354 9133



Symetrix WX Wall Controllers

Symetrix have added the WX Wall Controllers to their range. With a user programmable OLED display and dedicated knobs and buttons, standard IP communication over Ethernet also uses PoE. Available in three configurations, the controls of the WX series may be used for source selection, volume, mute, and preset recalls for any Composer based Symetrix DSP.

Australia and New Zealand: PAVT

www.pavt.com.au or +61 (0)3 9264 8000



Dynacord SONICUE Sound system software

Dynacord's Sonicue offers a new way of working with OCA (AES70) controlled sound systems (TGX-, IPX- and RCM28 equipped amplifiers). It allows system engineers to streamline the control and configuration of their OCA (AES70) enabled loudspeaker system. The software allows direct access to every system parameter on the fly, for fast set-up and tuning. Designed for third party plug-ins and interfaces with surrounding software.

Australia: Bosch

www.boschcommunications.com.au
or 1300 026 724

New Zealand: Pacific AV

www.pacificav.co.nz
or (09) 947 5230

ETC Source 4WRD II



FULL FIXTURE

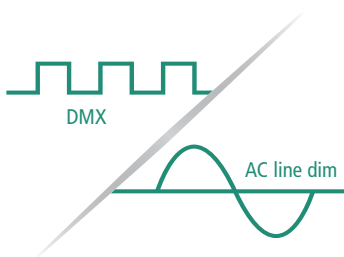
PAR

PARNEL

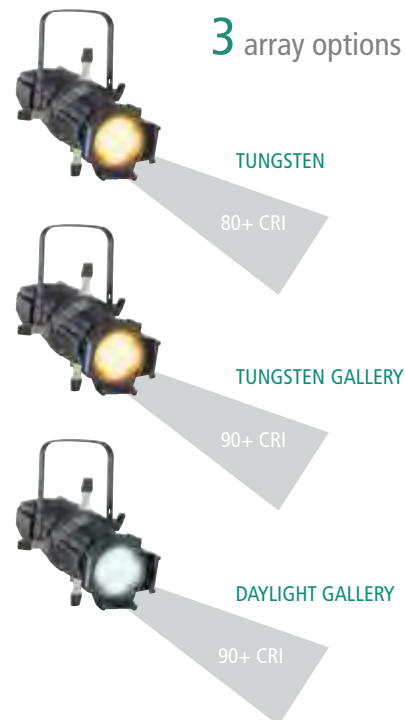
RETROFIT

4 great options

2 types of dimming control



With 4 Source 4WRD options available, in both original and daylight arrays, in 120V and 230V, you will never be at a loss for great white light.



3 array options

TUNGSTEN

80+ CRI

TUNGSTEN GALLERY

90+ CRI

DAYLIGHT GALLERY

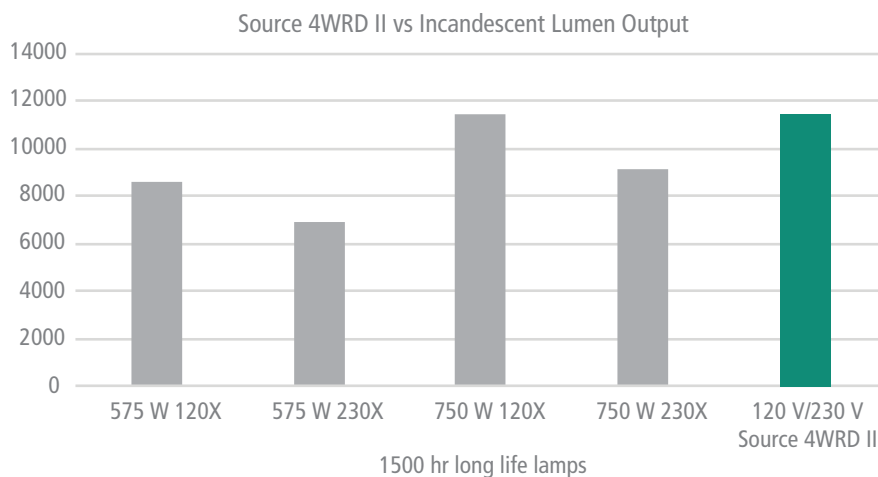
90+ CRI

HOUSES OF WORSHIP ■ HOSPITALITY
UNIVERSITIES AND SCHOOLS ■ RETAIL
THEATRES ■ CLUBS ■ MEETING ROOMS
CAFETERIUMS ■ EXHIBITION CENTERS

0 replacement
lamps required
in inventory



L70 rating of 45,000 hours



The amount of light you get for the power you use is outstanding.
Expect ultimate efficacy, or lumens per watt with every Source 4WRD fixture.

Distributed by



www.jands.com.au



visual environment technologies | etcconnect.com





Martin ERA 800 profile

Martin ERA has released the 800 LED moving head profile. With crisp optics, full curtain framing and matched colour mixing and gobos from the MAC range, the 800W white LED engine produces a bright, sharp 6,500K gobo projection with a flat field. It features 1:8 of zoom (7 to 56 degrees), electronic dimming and strobe, full CMY colour mixing and separate colour wheel, variable colour temperature control, animation wheel and more. Compact, rugged and low weight for touring, this LED moving head is ready for big stadium entertainment and rental applications. LED Viper anyone?

Australia: Show Technology
www.showtech.com.au or
(02) 9748 1122

New Zealand:
Show Technology
www.showtech.com.au
or (09) 869 3293



LA2Xi Amplified Controller

LA2Xi is an install-specific amplified controller from L-Acoustics. Its bridgeable 4 x 4 channels can be configured with one, two, three or four outputs. This allows it to drive small, medium and large format loudspeakers, in full or reduced SPL, for various types of applications. Bridged all together (4x1) and it outputs 2550W. Housed in a 1U chassis for optimized rack space in integration applications and utilising the same DSP engine as the flagship touring LA12X amplified controller, it includes features for loudspeaker management, protection and monitoring and a comprehensive set of tools for system adjustment and calibration. Milan-certified, the LA2Xi offers analog and AES inputs as well as AVB with seamless redundancy.

Australia: Jands www.jands.com.au
or 02 9582 0909

New Zealand: Jands NZ jands.nz or 021 674 601



EB-L1060UNL Projector

Epson's EB-L1060UNL is part of their most compact interchangeable-lens laser projector series. It uses 3-chip 3LCD technology and sports a native WUXGA resolution with 4K Enhancement Technology, a high contrast ratio and BT.709 colour space. With up to 7,000 lumens of both colour and white brightness, the laser light source helps keep maintenance low for up to 20,000 hours. 11 optional interchangeable lenses to choose from.

Australia: Epson
www.epson.com.au or (02) 8899 3666
New Zealand: Epson
www.epson.co.nz or (09) 366 6855



Meyer Sound ULTRA-X20 Loudspeaker

The ULTRA-X20 is the new compact point source loudspeaker from Meyer. It's based around two 5" cone drivers, one 2" diaphragm compression driver and a rotatable 110° x 50° horn in a coaxial configuration. Power comes from a three-channel Class D amplifier managed with on board DSP. Specified with operating frequency range of 60 Hz to 18 kHz, phase response of ±45° (100 Hz @ 16 kHz) and linear peak SPL of 123.5 dB. There are three connector panel options. The two AC powered versions with looping Powercon® connectors with choice of 3-pin XLR for audio or 5-pin XLR for audio and RMS remote monitoring or audio and the DC version allows remote powering on a single cable with a 5-pin Phoenix connector. There are also horn variants available (80° x 50° and 110° x 110°).

Meyer Sound USW-112P Subwoofer

USW-112P is a compact subwoofer housing a single 12" long-excursion driver and using a class D amplifier with DSP control. The cabinet design features a low velocity port, based on the USW-210P, tuned for linear response and low distortion. Preliminary performance specifications include a linear peak output (measured with M-Noise signal) of 123 dB SPL across an operating frequency range of 35 Hz to 140 Hz. Phase response measures ±30° from 45 Hz to 120 Hz. Made with a shallow footprint of 30cm for when space is limited.

Australia: Audio Brands Australia
www.audiobrand.com.au or (02) 9659 7711
New Zealand: Pacific AV
www.pacificav.co.nz or (09) 947 5230

NEW GEAR

NAS – From then...



FOUNDED IN 1998



First warehouse, Templestowe VIC



Directors, 1998



Early days Service Department



One of our first trade show stands



The O.G. full Team!



NAS Staff Christmas Party



NAS Offices – VIC, NSW, NZ



d&b Training at NAS HQ



dBTechnologies VIO L212 Launch



INTEGRATE 2019 stand



Over 20 years later and still providing first class service to the Pro Audio and Commercial AV Markets.



... to now!

VIC: (03) 8756 2600 | NSW: (02) 9898 0670 | NZ: (09) 414 4220 | www.nas.solutions



MICHAEL BUBLÉ

by Cat Strom

Modern-day pop acts could learn a thing or two about performance from this seasoned star who fills his gig with warmth, personality, and spades of talent.

Michael Bublé's world tour, *An Evening With Michael Bublé*, a celebration of his 10th studio album, toured Australia through February. Mixing FOH was Craig Doubet on his fourth full length world tour with Michael, every tour having had one major thing in common; they all utilised a Meyer Sound system. Audio gear and crew were supplied by Solotech with approximately 200 Meyer Sound cabinets helping to fill the 19 trucks on the road.

"I was involved in the overall design of the show because of how Michael wanted to be heard," said Craig, who has mixed Michael since 2007. "So we came up with an idea and they said 'great, what about all these lights?' and so the physical look of the show was altered to accommodate what we're doing with audio – so I'll take that as a win for the audio team!"

To be fair, Michael is so charismatic he could play on an empty stage and still bring the house down. The artist himself says this tour is primarily about music and sound. On stage, there is a five-piece rhythm section, three backing vocalists, a thirteen-piece brass section, sixteen strings and a conductor.

Craig Doubet studied audio technology at Indiana University's School of Music,

graduating in 1986, before spending several years in a recording studio. His first foray into mixing FOH was for Latin star Luis Miguel in 1995 and since then he has never looked back mixing k.d. lang, Sergio Mendes and Monica Mancini, amongst others.

"I enjoy mixing in other languages!" Craig remarked. "It's interesting to treat the vocal more like a sound and if you don't understand it, I find it can actually help you."

Craig is a big fan of Meyer Sound, saying he has been using their loudspeakers since 1995 because they simply just work for him, "I open the box, I open the channel and I think 'that sounds like a vocal'. Every day."

The main stage system for the tour comprises a total of 16 LEO and 44 LYON line array loudspeakers configured across the front, outfill, and side systems. Twelve 1100-LFC low-frequency control elements are flown at the main stage, with front fill from eight MINA and two JM-1P loudspeakers and floor bass anchored by four 900-LFC elements.

"The LEO and LYON combination for vocals is unbelievable, it's the meat of the PA, and technically there's no phase flop in it until very low," added Craig. "It just sounds very natural

and it's a very rich box that works really well for this type of music. It's the same with the LYONs on the side array so I try to keep the package all the 'L brand' as we call it. The good thing about Meyer Sound now is that their GALAXY processors can make the older M Line sound more like an L line by putting in All-pass filters and fixing the way that it responds."

It was Michael himself who wanted to perform out front on a B-stage as freely and easily as possible, it was up to Craig and his team to work out how to make the audio focus on him and so that Michael can hear himself.

The B-stage system comprises two long-throw arrays each with five LEO-M and twelve MICA line array loudspeakers; side arrays of 14 each MICA loudspeakers; and stage-facing rear arrays of eight each LEOPARD line array loudspeakers. Flown subwoofers here are 12 700-HP, with two 900-LFC elements on the floor along with seven MINA loudspeakers for front fill. System drive and optimization are supplied by a GALAXY 816-AES3 master processor networked via AVB with seven GALAXY 816 array processors.

"The B-stage rig is really part of the main PA," explained Craig. "I use it as a delay and it fills the back of the house. I like to think of it as a distributed PA so most of the time, there are really six arrays doing the entire room. It gives the intimate feeling that Michael really likes. I'm using MICAs because they're very flexible in that they can open up wide but still keeps it fairly compact."



Marc Depratto

In some venues which have lower ceilings, such as Adelaide Entertainment Centre, it can be tricky to work out how high the speakers can be versus the lights that illuminate him up on the B-stage and catwalk.

For ten minutes of the show, the B-stage turns into an in-the-round performance area so Craig turns off the main speakers and uses only the speakers surrounding the B-stage. Craig changes the time to 'zero time' for the PA so that Michael can take his IEMs out, if he

wants, and treat it like he's behind a PA, which he is.

The past two tours saw Michael utilising a B-stage but he was having a problem with his vocal from the main stage PA bleeding into his mic and then going into his IEMs. A delay of 125 to 160 milliseconds coming back into your ears when you're trying to sing can obviously be quite distracting.

"So the other tricky thing that we're doing is that any time he walks out to the B-stage from

the main stage, his vocal follows him," Craig elaborated. "It pans from the main PA to the B-stage PA and back again. That way he never hears himself out of a speaker behind him and it's also cool for the audience, although most don't notice it, because the vocal follows the physical person."

Michael likes to have wedges saying he likes to feel his 'pant leg' and so 15 Meyer MJF210 were located around the main stage and the B-stage.



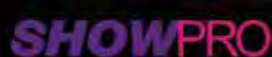
NEPTUNE SERIES

LED IP65 MOVERS
SUPER TOUGH, COMPACT, EFFICIENT!





Find out more at www.showtech.com.au/showpro



“The string section is local to whichever city they are playing so the audio department has to be ready and quiet by 4PM on show day so they can rehearse.”



Craig Doubet



Marc Depratto and Louis-Philippe Maziade

When asked about his thoughts on Qudos Bank Arena, Craig said there was a bit of a low-end wobble but it was not horrible.

“The biggest problem I have is that I’m mixing in a not great location because we’re put where you’d normally be but the B-stage PA is practically over my head,” he elaborated. “Plus we have a lot of obstructions to the PA such as a lighting truss that runs across and gets in the pattern as well as projection roll drops that come in and out of the show.”

In a throwback to his studio days, Craig was mixing on a Solid State Logic L500 adding that there were not many options as he has a high input and output count.

“At this level, I’d say DiGiCo SD7 or SD5

are the only other suitable options but I really like the workflow on the SSL which is less analogue in its approach to how it is presented,” said Craig. “To me, that makes perfect sense as I don’t want to pretend it’s an analogue console anymore. I want to set it up the way I want it set up. On the SSL there are three ways of doing anything you want so your workflow is very varied. SSL is my audio DNA.”

The biggest challenge mixing Michael is that he likes to move the microphone as far away as possible from his mouth. He’s physically very loud but Craig has had a lot of experience with this type of mic technique as both Luis Miguel and k.d.lang perform in this manner.

“It’s not the problem of getting signal, it’s just the frequency response as the microphone moves,” he commented. “Over time I have found the correct tools that work for that; essentially a dynamic EQ, not too much compression but most of keeping him in the mix is my finger. You don’t let go of a fader with a guy like Michael. On top of that, it’s a very dynamic show, it can be big and loud and then quiet and beautiful. In fact, the dynamic range is probably 25 – 30 dB.”

The only outboard gear Craig utilises is a Universal Audio Live Rack 2, a new addition to his world. He has been a long-time user of Lexicon 480L or 960L and requested Lexicon for this tour but Solotech said the units were getting elderly. Craig discovered the Universal

Audio Live Rack 2 which he says has been great on all his reverbs.

The string section is local to whichever city they are playing so the audio department has to be ready and quiet by 4 PM on show day so they can rehearse.

"They'll rehearse for up to an hour with the band joining in towards the end and then Michael will arrive for soundcheck for however long he wants, then often the strings will continue rehearsing so our time frame is really compressed," Craig said.

In microphone world, Michael decided to go wireless so he can roam the catwalk and B-stage with ease, opting for a Sennheiser 6000 with a Neumann KK204 capsule.

"The beauty of this rig is that now his vocal gets digitised in the microphone, goes to the receiver from which we take the AES output which is then run through a device that splits the AES three-ways before going into all of our consoles," explained Craig. "The first time that Michael's vocal becomes analogue is when it comes out of the speaker. It's a nice clean path, super tidy with no extra conversions."

The other vocals are on Shure Axient handhelds with DPA 4018S capsules. The horns are all DPA 4099s, and the strings are DPA 4060 Lavalier mics. The piano had a DPA 4031, the drumkit is mostly Sennheiser and Audix with Neumann 184s for the overheads and cymbals, and the DI boxes are all Radial.

Monitor engineers Marc Depratto and Louis-Philippe Maziade were both using DiGiCo SD7 Quantum consoles, chosen for their flexibility, with Marc mixing Michael and the quintet, and Louis-Philippe mixing the orchestra and conductor.

"Due to a heavy channel count, 130 inputs and 96 outputs, we had to step up to the Quantum engine," said Marc. "The SD series has a specific tone that I really like and I believe it's the closest to analogue that the digital world can offer.

"Michael likes to hear a full mix so my left and right buss basically go into Michael's ears so I mix it like I would mix a FOH position. With Michael moving away from the mic so much we have to be very careful of the stage level, as soon as he distances himself from the mic you have the brass and drums leaking into his mic so I put a Rupert Neve Portico 5045 on inserts on his mic to reduce the leakage which works really well."

Outboard there are two Lexicon PCM 92 reverbs for vocals, one for Michael and one for backup singers. Everything else is on board, with Marc noting that with the Quantum engine, they have dynamic EQs and compressors, and pretty much everything else they would require.

"Since we stepped up to 96K we try not to have too much in and out conversion for nothing so we try to keep it all onboard which is much more efficient," he added. "We're running 42 stereo mixes right now, spread between two consoles."

The main challenge for Marc and Louis is the sheer size of the orchestra. As said previously, it's a very dynamic mix, which they have to make sound good and consistent every day.

Louis mixes all of the orchestra, conductor and backing vocals with particular importance on the conductor as he drives the orchestra. With a fresh orchestra at every show, time is the enemy, and orchestra members are not used to IEMs, however they are really important so they can hear the conductor, the click and the instrument itself.

"There are so many microphones open on stage at the same time it's like a cat and mouse chase, you really need to know the parts when they're on and not on," said Louis. "Everyone is using IEMs, the Shure PSM 1000 system with all using Ultimate Ears UE-11s, as Michael only uses the wedges to add depth to his vocal, he has such a low voice it's not only about hearing it but also feeling it."

The show is recorded every night with Avid Pro Tools recording via MADI.

Honey Wall™

STEALTH WALL™

GEO WALL™

Ripple Wall™

Infinity Wall™

Mode Wall™

Lux Wall™

ORB WALL™

KLOUD WALL™

Tri Wall™

CONNECT

BACKDROPS Fantastic AUSTRALIA

1800 737 037
www.backdrops.com.au

OUR BRANDS:

EVENTS Fantastic AUSTRALIA

Modular BACKDROPS AUSTRALIA/USA

BACKDROPS Fantastic AUSTRALIA

PartyDrops Powered By Backdrops Fantastic

Light Up LETTERS

Proteus protection on wet Muse stadium shows

Photo Credit:
Louise Stickland

Playing outdoor stadium dates, you never know what Mother Nature has in store, no matter what time of year. It's always a bit nerve-racking for concert touring technical and design personnel. On English rock band Muse's acclaimed 2019 *Simulation Theory* world tour however, some of that angst was eased by Elation Proteus Hybrid IP65 moving heads that were impervious to the wet European summer.

Designing lighting for the tour, which started early in 2019 and wrapped in October, was Sooner Routhier, her first lighting design for the band and her first experience using Proteus fixtures. She commented, "We needed a strong IP65 rated fixture for the rainy, European, outdoor stadiums. They had to be a punchy hybrid beam to reach the high levels in the stadiums. We also needed a fixture that could handle all the intricacies of Muse's music. This was my first experience with Proteus and they were the perfect fixture for our needs."

Muse travelled the world throughout 2019 in support of their late 2018 *Simulation Theory* release. Sci-fi thematic with 1980s and video game inspiration, the tour's artistic direction was by Jesse Lee Stout with lighting playing a major role in the show. Routhier's stimulating design carried out into the audience via a runway that connected to a B stage that allowed the band to engage with their audience. For the outdoor stadium shows, as well as a pair of London O2 arena video shoots, the immersive visual look was amplified with lines of Proteus Hybrid on

both sides of the runway and encircling the B stage.

"Sure, we used them because of their badass IP rating but they were also good at accenting the intricacies of Muse's music. I think my favorite moment was during the song *Thought Contagion*, where they were focused on the runway and the B stage to light the zombie dancers in eerie green light. They were also used to create webs of laser-like light above the audience for Act IV - Ultraviolet. Another favorite look is when they formed a pyramid of beams above the B stage," Routhier said. Worldwide lighting supply for the tour was by US rental company Upstaging.

Routhier and Aaron Luke programmed the show with Luke out on the road handling lighting direction and operation. "The Proteus Hybrids held up outstandingly well," Luke added. "We had a very wet summer in open stadiums all around Europe, and it was nice not having to worry about those fixtures." With a reputation for energetic live performances and known as one of the world's major stadium acts, *Simulation Theory* did not disappoint.

BOSE

PROFESSIONAL

SOME WAIT. SOME SEEK.
OTHERS JUST
MAKE IT HAPPEN.

**Sure, some thrilling experiences
come out of nowhere.**

But not in this industry. When it comes to live sound, unforgettable experiences are built — one piece at a time. We made **ShowMatch** to be the piece you don't have to worry about. Yes, because it's durable and reliable. But also because we're not going anywhere. We're here to support you. And we're here to stay.

PRO.BOSE.COM

ShowMatch Systems

More coverage from fewer modules

DeltaQ technology allows tailorable coverage patterns to better match the venue

Complete solution available with carts, cases, and amplification

© 2020 Bose Corporation. ShowMatch and DeltaQ are trademarks of Bose Corporation.

Come hear the ShowMatch at the ENTECH PA Showcase

ENTECH

PERTH- 5th Mar ; **ADELAIDE**- 10th Mar; **SYDNEY**- 12th Mar; **MELBOURNE**- 17th Mar; **BRISBANE**- 19th Mar

For more details, please call us at **+61 2 8737 9999** or email at **Bose_Professional_ANZ@bose.com**

Australia's One-day AV Expo

ENTECH

ROADSHOW

PERTH THURS 5 MARCH PCEC	ADELAIDE TUES 10 MARCH ADELAIDE SHOWGROUND	SYDNEY THURS 12 MARCH HORDERN PAVILLION	MELBOURNE TUES 17 MARCH MCEC	BRISBANE THURS 19 MARCH RICC
---------------------------------------	---	--	---	---



Welcome

Now we have four trucks on the road, we're approaching the limit of what can be achieved with a one day event that loads in at 6am, and is open at 11. The past year has been really interesting for the trade with more brands changing distribution than ever before!

THE OBJECTIVE OF ENTTECH ROADSHOW

- To give you, our trade colleague, a direct channel to all the major products you need for staging your event or building your installation. We save you time and money bringing this to you.
- Make sure our exhibitors enjoy a cost effective experience without 'got-cha' extra expenses that arise at huge, multi-day tradeshows.



NEW FOR 2020 IS OUR ENTTECH THEATRES

with educational sessions every half hour. Also new is our AV Hour of Power from 10am, which gives you a 'power trip' of short presentations ahead of the trade floor opening. This is intended to highlight products and technologies that you may then visit and focus on during the day.

We've brought a lot of behind the scenes improvements that we learned during our year developing ENTTECH for the USA. Sadly they were not ready for it, or we were too hard to understand. We had a good time, and the constructive lessons make ENTTECH today a better event. For you.

Kate McKenzie
and Julius Grafton

What's on

10am	AV Hour of Power
11am	Showtime
11.30am	Education sessions every 30 minutes
12.00pm	PA Showcase
1.00pm	Lighting Showcase
2.00pm	PA Showcase
3.00pm	Lighting Showcase
4.30pm	Happy Hour
5.00pm	Prizes
5.30pm	Cable Rolling Competition
6.00pm	Loadout! Stay back and help?
9.00pm	Trucks roll out

LIGHTING SHOWCASE
See the latest LED wash, beam and profiles demonstrated

RAPCORDER HORIZON CABLE ROLLING CONTEST
Total prize value RRP \$400

PA SHOWCASE
Hear the newest PA systems demonstrated one by one

ENTTECH 2020 SPONSORS

 Happy Hour sponsored by Chameleon Touring Systems	 Entech Registration sponsored by MadisonAV	 Entech Cafe sponsored by H2 Insurance	 Entech PA Showcase sponsored by waves (distributed by sound and music)	 Entech TV sponsored by Eventec	 Cable Rolling Contest sponsored by Rapco Horizon
---	--	---	--	------------------------------------	--

ENTTECH 2020 EXHIBITORS





REDBACK

Still Made In Australia.

Over 40 years of experience in commercial audio.

Altronics have been manufacturing Redback® public address products in Perth since 1976. We take pride in supplying the pro audio industry with innovative Australian Made product, offering superior performance, reliability, warranty & local service support.

ALTRONICS www.redbackaudio.com.au
Australian Made Since 1976. 

 **Amber TECHNOLOGY**

DON'T MISS THIS CHANCE TO MEET THE **AMBER TEAM**
AND ASK THEM ABOUT ALL THE
NEW PRODUCTS AND BRANDS IN **OUR RANGE.**



 **MACKIE**
SOUND LIKE YOU MEAN IT
  **DIGITAL PROJECTION**
A Delta Associate Company
  **Radial**
ANY SIGNAL. ANY LEVEL.

 **WILLIAMS AV**
 **EO**
 **AC INFINITY**
 **VAN DAMME**
THE ROUTE OF LEAST RESISTANCE
  **NEUTRIK**

 **Solid State Logic**
OXFORD • ENGLAND
  **EANAPE**
 **SURGX**
 **RENKUS-HEINZ**

 **DPA**
 **APOGEE**
 **JTS**
 **PRIMACOUSTIC**
 **iNTi AUDIO**

ambertech.com.au

 **AUDIO BRANDS**
AUSTRALIA



 **MIPRO**
 **Meyer Sound**
 **univox**
BY EDIN
  **FBT**

 **Earthworks**
 **RANE**
 **BOSCH**
 **frontrow**
your central command

 **LUNA RESEARCH**
 **Electro-Voice**
 **RTS**
 **UTOPIA AUDIO**

Audio Brands Australia Pty Ltd
Unit 2, 4 Packard Ave, Castle Hill NSW 2154
www.audiobrandsaudio.com.au

Ph (02) 9659 7711
sales@audiobrandsaudio.com.au

 **Electro-Voice**

NEW RELEASES:

MIX IT UP with EVOLVE 30M

Lighter & more portable.
8-channel mixer, studio-quality onboard effects, Bluetooth streaming and app control.



MFX 12" & 15" Pro Monitors

Tour-grade components. Monitor, pole-mount or install. Two-way coaxial design, 136 dB max SPL.



PXM-12MP Powered Monitor

Flexibility & performance: FOH, side-fill, guitar cab, coaxial monitor, 129 dB max SPL.



WIN an ND Mic of your choice by visiting our stand. One draw in every city.



Discover the new ClickShare Conference

Let the new ClickShare Conference transform your remote meetings. Simply plug in the ClickShare Wireless Conferencing Button.

- ✓ **ANY COMPUTER**
- ✓ **ANY PLATFORM**
- ✓ **ANY PERIPHERAL**
- ✓ **ANY DEVICE**
- ✓ **ANY DISPLAY**

Distributed in Australia & New Zealand by Audio Visual Distributors
www.avdistributors.com.au | 07 5561 7530 | sales@avdistributors.com.au



ENABLING BRIGHT OUTCOMES

BARCO

ClickShare Conference, Collaborate, Click!

POWERING EXPERIENCES

Avid VENUE | S6L-24C & 16C Available Now!

Avid VENUE™ | S6L offers a fully modular and newly expanded line that enables you to design the perfect system and scale it up or down to meet any size production, space, or budget requirement—with the same award-winning workflows and sound quality.

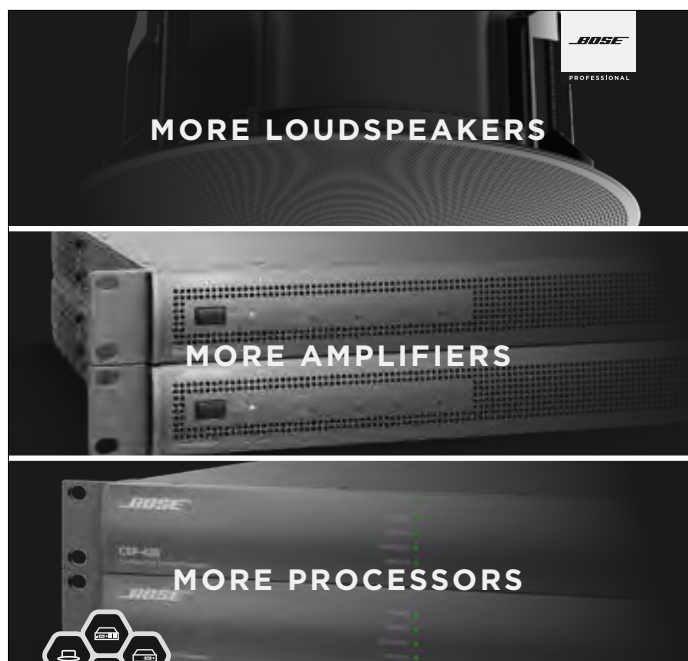


Expand your possibilities even further with four new components. Get massive mix efficiency with the compact S6L-24C and S6L-16C control surfaces. Power big performances across smaller stages with the E6L-112 engine and gain maximum I/O flexibility in a minimal footprint with the Stage 32 rack.

To learn more, talk to Drew Parsons and Peter Jago at the Avid product display or visit: avid.com/S6L



© 2020 Avid Technology, Inc. All rights reserved. Avid, the Avid logo, and Avid VENUE are either registered trademarks or trademarks of Avid Technology, Inc. in the United States and/or other countries. Image courtesy of Chadly Awad.



MORE LOUDSPEAKERS

MORE AMPLIFIERS

MORE PROCESSORS

**FOR BETTER SOUND
IN MORE SPACES**

With the Installed Sound Expansion, we've expanded our range of loudspeakers, processors, amplifiers, and controllers. Our established products remain and we've added new product families into the mix. Now system designers and installers can deliver better sound systems in more spaces than ever.

To learn more about our new **DesignMax** loudspeakers, **PowerSpace** amplifiers, and **Bose CSP** processors, contact your local Bose dealer or visit PRO.BOSE.COM/installedSoundExpansion

For more details, please call us **+61 2 8737 9999** or email at Bose_Professional_ANZ@bose.com

© 2019 Bose Corporation. DesignMax, PowerSpace, and BOSE CSP are trademarks of Bose Corporation.



Clair Brothers

CLAIR BROTHERS

C10



INFINITY Signature SERIES
TRADITION REDEFINED

PROFESSIONAL THEATRE FIXTURES

Spirit of

Find us at the
Clearlight Shows
Booth at
Entech Roadshow

61 3 9553 1688
www.clearlight.com.au

TS-260C7 7 Colour LED Profile

infinity

Clearlight Shows Pty Ltd



Clearlight Shows Pty Ltd

come & see the
latest products from

SWE FOG

infinity
INTELLIGENT LIGHT

zero

at **ENTECH**
ROADSHOW

www.clearlight.com.au
03 9553 1688

**WE LISTENED,
NOW IT'S
YOUR TURN**

VTX: A-SERIES

 Hear the **JBL VTX A8**
at **Entech 2020**



Entech 2020,
showcasing
products from:



CS7p
MILAN READY

Beginning with the CS7p, the new CS-Series will be the world's first family of mobile loudspeakers to feature onboard Class-D amplification, DSP and Milan-ready (AVB) network endpoints.

**HEAR THE ADAMSON CS7p
& MORE AT ENTECH 2020**



 **CrewCare™**
For ALL Live Production Professionals

Crew meet @ENTECH every year!

IN PROUD COLLABORATION WITH
SUPPORTACT
The heart & hand of Australian music





CrewCare is a democratic membership based charity working to improve the care for all workers in the live production industry.
Join Us at our Entech stand and learn more about what we do.

ONE BIG CROWD



ONE SMALL BOX*



ONE GREAT SHOW

JERICHO

By 

* PLUS SUBWOOFERS, AT DANLEY WE LOVE DEEP AUTHORITATIVE MUSICAL BASS

**We need
to talk...**









dq.com.au

SYDNEY | MELBOURNE | BRISBANE | PERTH



WE'VE GOT your BACK

DESIGN *it* RIG *it* STAGE *it* PROTECT *it* LIFT *it*

ph 02 9649 2266 (HQ) email info@dq.com.au



for lumen beings®



OPUS X OPUS H5 EVOS W7

cameo®
for lumen beings

Are you a lumen being?
forlumenbeings.com

DESIGNED & ENGINEERED IN GERMANY

 Cameo® is a registered brand of the Adam Hall Group.

Australian distributor – Direct Imports – contact Greer Compston +64 29 5098910 or Aidan Simons +64 21 352598

Laser Display Solutions




EPSON

EXCEED YOUR VISION

Designed for Exceptional Performance

Epson large venue display solutions take image quality to new levels with game-changing laser light sources, flexible installation options and outstanding resolutions. Create powerful images with outstanding reliability and minimal maintenance that are ideal for large auditoriums and staging & rental applications.

For more information visit
www.epson.com.au/LaserProjectors

© Image courtesy of Adelaide Fringe 2019

4K

LASER
LIGHT SOURCE

3LCD



EVENTTEC








www.eventtec.com.au
02 9897 3077

Flex

Rental Management Software

■ ■ ■ Meet the Future of Inventory Management.



- New Sleek Design
- Full Mobile Access
- RFID Support

Scan Less, Do More.




www.flexrentalsolutions.com



LIGHTING • VIDEO • AUDIO • RIGGING • TRUSS • STAGING

Full turnkey production service provider

Australia's most innovative and well-resourced solution provider to the events industry



One of the largest inventories of production equipment including

- LED Lights • Moving Lights
- LED Screens • Audio • Video
- Truss & Motors
- Staging & Draping

MELBOURNE (03) 9825 8666
81 - 95 Burnley Street, Richmond VIC 3121

SYDNEY (02) 9666 8699
Unit 12/1 Hale Street, Botany NSW 2019

@harrythehirer.com.au
@harrythehirer_productions

ESPRITE™

TRANSFERABLE ENGINE

THE WORLD'S FIRST
TRANSFERABLE LED ENGINE



Distributed by
JANDS www.jands.com.au

ROBE®
#RobeInnovation

It's Time to **EXTEND** the Possibilities of Live Events



**OPTJ
HDMI2.0**
Optical Extenders



**Optical
Extender**
HDMI20-OPTC Series



R-TYPE
Rental-Robust-Redundant
UBEX-Pro20-HDMI-R100



**MX2
STANDALONE
MATRIX
SWITCHERS**

We also offer a comprehensive range of standalone matrix switchers in various crosspoint sizes from 4x4 to 48x48, including both HDMI 2.0 and DP 1.2 input port options

LIGHTWARE



s|||e
AUDIOTECHNIK
I-LINE
Beautiful aesthetics with crystal clear speech reproduction and dynamic music playback



Dante
ecler
MIMO4040DN
Digital Matrix with Dante™ interface



LEA
PROFESSIONAL



-Dante- **CONNECT SERIES**
IOT Enabled Professional Amplifiers

midwich Australia
1300 666 099 | www.midwich.com.au



Power to Control

www.lsclighting.com.au

LSC

d&b audiotechnik

dBTechnologies

array K

MIDAS

KLARKTEKNIK

GHOS T
Convergent
Network
System

PARALLEL AUDIO

PLIANT TECHNOLOGIES

NAS 1800 441 440 | www.nas.solutions
nas.solutions

PT-RZ120
1-Chip DLP™ Projectors

Panasonic
BUSINESS

Visit us at Entech to see the PT-RZ120

Illuminate the Spectacular with
Smaller, Lighter, Brighter Laser.

ENTECH

SOLID SHINE LASER

DLP

LumiNode
Flexible & Reliable Lighting Solutions

Luminex
NETWORK INTELLIGENCE

WITH LUMINODE YOU HAVE UP
TO 16 PROCESSING ENGINES &
UP TO 12 DMX PORTS

Visit us
at the PAVT stand

Ph: 03 9264 8000
sales@pavt.com.au

**PRODUCTION AUDIO
VIDEO TECHNOLOGY**

EAW

RS SERIES
EAW quality sound in a portable package.

Our new RS Series is a family of 2-ways and
subwoofers that utilise leading-edge
touring-grade transducers and EAW Core
Technology to produce unmatched
fidelity and accuracy.

ccsis **RATstands**

**Music Stands • Sconces
Staging • Chairs**

www.RATstands.com.au

1800 63 33 63

SHOW

TECHNOLOGY

INSPIRE.
CREATE.
ILLUMINATE.

DISCOVER THE LATEST RELEASES FEATURING:
Martin's NEW ERA series, MA's GrandMA3 compact XT & onPC command wing, Claypaky's Mini-B & ShowPRO's IP65 Neptunes!

Stungit AVYTON CLAYPAKY ELC Look MA Martin PROLIGHTS
ROBERT JULIAT SHOWPRO StageSmarts StudioDue

See our full product range at www.showtech.com.au

SHOWTOOLS
INTERNATIONAL

Leading tools of the trade,
trusted to deliver your vision.

LIGHTING | RIGGING | STAGING | EFFECTS | CASES | ACCESSORIES

CHAUVET PROFESSIONAL FUSION GLP German Light Products LEDBLADE portman
EUROTRUSS SMOKE FACTORY FOG AND HAZE GENERATORS MINUIT UNE LIGHT SKY
SHOW AXALIGHT ape kabin ILLUMINARC SHOTRACK

SHOWTOOLS.COM.AU +61 2 4646 1199

SYDNEY • MELBOURNE • GOLD COAST • PERTH

SOUND MUSIC

Softube

SE DiGiGrid WAVES

Benchmark
...the measure of excellence! ®

PERREAUX

A R T
APPLIED RESEARCH AND TECHNOLOGY

Tools to Inspire

www.sound-music.com 0395558081

PLEASE RECYCLE YOUR OLD MIXER RESPONSIBLY

The third mixer based on our 96kHz XCVI FPGA engine, Avantis puts all our next-generation technology in a standalone 64 channel / 42 configurable bus console, with dual Full HD touchscreens, a super-flexible workflow with Continuity UI, extensive I/O options, add-on processing from our flagship dLive mixing system, and a rugged full metal chassis.

Step up to Avantis. Leap ahead of the curve.

& avantis

ALLEN & HEATH
allen-heath.com/avantis

The Rigging Shop

Featuring



**Lifting, Safety and
fall prevention specialists.**

www.theriggingshop.com.au

Do you identify as a tech sister?
Are you in the Events
Industry & looking for
support for yourself
& your
career?

We've created a
thriving community,
full of like-minded tech
sisters, that follow the same
vision: to **Empower, Encourage &**
Equip members from
all departments of
the Events Industry.



**THE
TECH
SISTERS**
Empowering The Events World

www.thetechsisters.com

AVATUS

NEXUS

STAGETEC

Dante Domain Manager™

dio
DANTE INPUT/OUTPUT

Dan Dugan
SOUND DESIGN
WWW.DANDUGAN.COM

GlenSound

Smart pi

TiMax

EX
EDC ACOUSTICS

DirectOut
TECHNOLOGIES

See it all at **ENTECH Roadshow 2020**

bringing technology together

P | +61 2 8011 0500
E | info@tm-systems.com.au
W | www.tm-systems.com.au



**ULA
group**

*Proudly representing the leading entertainment lighting
& visual technology brands from around the world*

VUEPIX **ELATION** **ASTERA** **MDG**

7M **DJ POWER** **RGBlink** **lumenradio**

SGM **LUXIDEL** **ACME** **NOVA STAR**

ADI **arKaos** **CHAIN-MASTER** **ChamSys**

ULAGROUP.COM **COME AND SEE US AT ENTECH**

PRODUCTION EQUIPMENT SUPPLIERS FOR 18+ YEARS

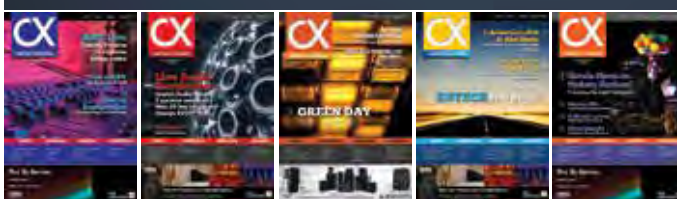
vfmgroup
CASES. TRUSS. CABLES.

VISIT US AT
ENTECH
ROADSHOW



TRADE DISCOUNTS + ONLINE ORDERING
VFMGROUP.COM.AU

Under New Management!
CX Magazine



Monthly in print and online
Keeping the ENTECH industry
informed since 1990

Free online
Print edition via subscription

JULIUSMEDIA.COM

WE TAKE YOU TO THE CUSTOMERS!

ENTECH
ROADSHOW

Join us on tour and exhibit
across Australia

Instead of one huge trade show in one large city, our dedicated trucks carry your exhibitor equipment direct to each venue where our crew deliver it onto your stand.

Touring Sydney, Melbourne, Brisbane, Adelaide and Perth in March

ENTECH is the tried and proven platform to reach the majority of professionals engaged in the pro audio, lighting, video and staging markets for live, install, commercial and theatre.

Established by the owner in 1994, ENTECH is a cost effective experience that offers unbeatable return on investment for exhibitors, compared to a single, large format tradeshow.

Contact Steve James for further info: steve@juliusmedia.com

www.entech-roadshow.com

Complicated Mixes. Where to Start, How to Finish – Part 1

By Andy Stewart

Navigating your way through a complicated mix is all about starting with an open mind and a positive attitude the moment you sit in the chair. There are essentially two types of complicated mixes: the one you're familiar with (possibly because you tracked it) and the other you hear for the first time when you hit play on the multitrack. This article is mostly about the latter.

Some mixes you're presented with on first listen start off as a multitrack barrage of wildly dynamic, upside down, topsy-turvy levels, where one sound is 10dB louder than everything else, most things are in mono, the arrangement sounds like a mess and the song isn't so much 'speaking' to you – as the clichéd first impression would have it – as assaulting your ears with obnoxious levels and tones. Not all multitrack sessions present this way out of the gate, but many do.

So to start a complex mix, the first thing you need to do is get past this first stage – tame the wild beast!

Everyone mixes in their own unique way of course, and each of us has our own priorities of what we might action first to get the ball rolling, depending on what we're working on. But the vast majority of us start by knocking the song into a very rough shape as quickly as possible, for our own sanity and safety as much as anything else.

Once we've got the song in a relatively predictable place where nothing is set at a level that will blow our head off halfway through the song, we can get to work.

At this point, many of us go our own separate ways. We deploy our own working methods either based on a set plan, a hunch, a curiosity

about a sound we heard during the first listen, or a random whim.

In some respects it really doesn't matter where you start, so long as you start somewhere, safe in the knowledge that you're thinking positively, and mindful that it's all about where you end up, not where you started. I would defy anyone on earth, whether they're a mix engineer or not, to identify where a mix engineer started his or her working process. Not only would that be a futile exercise, it would also be pointless. All that matters is the end result.

The mix process is entirely up to you (and your client, if they're involved). If you're a Start-With-Channel-1 (Kick Drum) kind of guy, then by all means, go for it. If you're a Vocals-First girl, then start there. Or if you like to just let all the faders speak at once, do that. However you want to start the ball rolling is up to you.

What matters most, especially if you're acquainting yourself with the music as you simultaneously start working on it (meaning you've not heard it before), is that you don't try too hard to develop a deep insight straight away. Forget all you've heard from other people (including me) about how they work, or where they start, how they pictured the song, or how it spoke to them! Blah. Let the song be the roadmap as it were, and use the

sounds, lyrics and attitude in combination with your curiosity, instinct and stream-of-consciousness workflow to just get on the road. And hey, the song might have 200 tracks of audio, but that doesn't mean you can't immediately take a detour off the freeway and check out what's on Track 178. Why not?

Ephemeral First Impressions

At the beginning of a mix, the song, its instrumentation, and the musical details of every part are inevitably unfamiliar to you, but that's your greatest asset at this point. You're fresh and new to the music, and that's a powerful perspective. Don't waste it, or belittle it as being naïve or ignorant to the music somehow. Listen without prejudice, fear or favour and enjoy the fascinating, luxurious perspective while it lasts.

Your unfamiliarity is your strength. Your lack of background info about the band members, their gear, politics and eating disorders helps you listen to the music as a punter might. No-one else has this perspective on the music – least of all the band.

While you're getting acquainted with the music, lots of thoughts rush through your head about all the things that need to be addressed during what will likely be a drawn-out process, possibly involving days of work. So after a short period of time with the track – you've settled it down over a few listens, poked around in solo here and there, and had some interesting initial thoughts and reactions – now is the time to go put the kettle on. While that's boiling, let your mind wander, then gather your thoughts together on what you want to tackle first, what has piqued your curiosity and what was clearly a sound that needed 'fixing' from the outset so you can hear past it to the rest of the instrumentation.

When you sit back in the chair, cuppa in hand (but not on the console!) you're primed for work, and this is one of the most productive times during the session. There's a lot of fun things to do, sounds to investigate, things to

fix and background work to do like grouping and/or colour coding like tracks, auxiliary sends, routing construction and so on.

This work is often best done with the song playing at modest levels, and without too much in-depth scrutiny of the music on your part. You may choose to get to know the song a bit better while you're performing these menial tasks by keeping the track rolling, or you might prefer to have no sound at all. Whichever way you prefer to work, it pays to float around early in the session, addressing whatever you feel necessary, whether that be a highly creative development of a key sound, or screwdriver work involving tweaks to your DAW's preferences. It really doesn't matter – ultimately it's all work that needs doing.

If, on the other hand, clients are present, you may not have this luxury. You may indeed find them dragging you around like a fish on a hook following their whimsical (and possibly prejudiced) perspective, rather than pursuing your own train of thought. This can be frustrating to some engineers. If you're in this group, identify your irritation and consider making a habit of working alone during this initial phase.

Jump Cut

Okay, now we're at the other end of the session. It may be late on the first night, or days later, but now we're almost there. We

love the work we've done, we've travelled a huge distance to get the song sounding great, and we're vastly more aware now of how the song's instrumentation works compared to our puzzled perspective way back at the outset. The band has also heard the mix, and apart from a few little issues, they love it.

But we're still not quite there. We need to address a few things.

At this point what is often overlooked are some of the details buried in the performances. You may be well aware of them by now, but not necessarily.

My tip at this late juncture is to listen for details in the main (and secondary) performances, making sure you highlight them appropriately. To do this you may need to solo an instrument, or small groups of instruments, to hear exactly what they're playing. Avoid buying into the generalisations floating around the pro audio community around soloing. Statements like: "Oh, no, I never solo because that's not how people listen to music!"

That's true, but it's also rubbish in one important respect. Listeners aren't mixing the song! You are. So unlike the way people ultimately listen to the mix, you are in charge of orchestrating what's heard and what's featured. If you don't know the details of what's being played, how do you know what to feature? It's not enough to say: "Oh, this

is the lead instrument, obviously it needs to be loud!" Most songs, particularly complex ones, don't often feature one single, overtly dominant sound, and even if they do, they don't do it for the whole song!

There are inevitably times when small details matter. The potential downside of the 'never-solo-during-a-mix' method is that sometimes the detailed phrasing within a performance (especially inside a complex ensemble of sounds) can remain elusive, even to you, the mix engineer! Now is the time to get acquainted with these details and decide whether they need extra limelight (or conversely, editing out). Like little diamonds just under the surface, when you highlight all these nuanced moments in the music, the mix explodes into life – a life you may not have been aware of or had time to address for the last 30 hours.

Next issue we'll look at some special ways to highlight these details without unravelling the mix!

Andy Stewart owns and operates The Mill on Victoria's Bass Coast. He's a highly credentialed producer/engineer who's seen it all in studios for the last three decades. He's happy to respond to any pleas for recording or mixing help... contact him at: andy@themill.net.au

BRIGHT. BRIGHTER. BRIGHTEST.

THE DAWN OF A NEW ERA!

Introducing the
ERA Performance range,
the brightest light in
Martin's history.



Available in highly efficient LED engines – 300W to 800W – these light and compact fixtures produce bright, sharp image projection with a flat field and include CMY colour mixing, full curtain framing and extensive zoom systems.



www.showtech.com.au

SYDNEY • MELBOURNE • PERTH • BRISBANE • AUCKLAND





BJÖRK'S CORNUCOPIA TOUR

Photo Credit by Santiago Felipe @santiagraphy

Björk is renowned for her beautiful, esoteric and uncompromising live productions built on visual and sonic experimentalism and taking performance into new and sometimes unnerving contexts. The focus of the Cornucopia show – initially produced as a series of one-off shows at new arts venue The Shed in New York, mid-2019 – was nature and the environment, touching on some of its frontline issues.

Southampton, UK-based lighting rental specialist Liteup supplied lighting, video server and control plus rigging – 136 points including Kinesys automation – equipment for all technical departments for the recent UK and European leg of Björk's ongoing highly acclaimed Cornucopia tour, for which the dramatic lighting was a co-design by Bruno Poet and Richard White.

Bruno is well known as a theatre and opera LD and for his creative lighting for bands like avant-rockers Sigur Ros, also from Iceland. Richard White has worked for Björk as a programmer and lighting director on the road for the last six years, and together the two enjoyed a fantastic synergy that has produced some stunning lighting.

The visual starting point for Bruno and Richard's lighting design was the breathtaking video content created by artist and designer Tobias Gremmler – with whom Björk has worked previously – together with Chiara Stephenson's striking and intricate set designs.

Bruno and Richard both also really enjoyed working with show director, award-winning Argentinian filmmaker Lucretia Martel whose influence brought a cinematic perspective and its own distinctive spirit and rhythm to the show.

Liteup's Account manager was Marc Callaghan, supported by project manager Dan Bunn.

Marc stated, "We were extremely proud to be part of a ground-breaking production like this. The show looked fantastic and absolutely blew me away when I saw it. The production was very detailed and precise with all the elements both physically and artistically linked."

Björk is heavily involved in all aspects of her live show productions and she wanted all the show's visual elements to look and feel organic and to have a fluid synergy. The stage floor was modelled on mushroom heads complete with their complex gill structures on the underside, and opening / closing string curtains stage left, right and upstage centre together with a LED screen at the back all added perspective and texturing.

The lighting design brought a theatrical flourish to a concert stage and was also arranged in layers, offering the ability to change and shift the environment and to highlight and emphasise different areas separately or combined.

At some points, the visuals took centre stage, and other times the video faded into the background while lighting and scenics took up the narrative, with the two medias working closely and complementarily throughout.

Liteup provided 16 Martin MAC Viper Performance and 37 MAC Viper profiles for the main hard-edged moving lights, which were arranged on six over-stage and two FOH trusses, joined by 29 GLP X4s as the primary wash lights.



Two Robe BMFL WashBeams running on a RoboSpot remote follow spotting system were positioned at FOH off to the sides which was to increase the subtlety of their impact on stage – the goal being that the artist should not even feel their presence.

The RoboSpots were a key element. “We always try and spot Björk from a very side-on angle which isn’t always possible when touring multiple venues,” stated Richard. Using this system allowed him to keep control of all the colour and intensity parameters from FOH making the artist’s key light much more ‘live’ and controllable, particularly for this show with layered projection surfaces and automated drapes.

Thirty-two GLP X4 Bar 10s and 20 X4 Bar 20 LED battens were positioned on the over stage trusses in upstage and downstage rows. The staging concept is based around a ‘utopian planet’ and Bruno and Richard wanted to be able to create multiple sunrise and sunsets with stage-wide shifts of colour.

Both GLP JDC1 and SGM Q2 strobes had been used throughout all the shows, offering a wealth of different effects from the same unit. On this leg, Richard spec’d Q2s for the floor strobes and JDC1s for the overheads as they had swapped to a festival-style rolling stage with the floor units completely visible. The requirement was therefore for a small footprint strobe that absolutely kicked!

Twenty Astera AX3 ‘LightDrop’ battery powered LED ‘pucks’ were dotted around the stage providing a neat wireless up-lighting solution to highlight the mushroom gills and other set elements.

“These were our footlights and sat on the stage set itself,” explained Richard. They wanted to achieve close angles and bring another dimension to the lighting but without cabling and fixing points.

Richard had used them before and knew they’d be “perfect for this job”. They could be charged during the load-in and simply positioned and focused before doors each day.

Two grandMA3 light consoles were supplied by Liteup for control with a disguise 4x4 pro media server for the playback video which was operated by Daniel Bond.

One of the biggest challenges for lighting was during the more ‘video-driven’ songs, where people and set had to be lit in complementary and subtle ways, and serious detail went into finding angles “to create our effect but avoid any of the projection surfaces”.

This was the primary reason they needed so many fixtures with framing shutters and at one point, lights had to be rigged on the curtain trusses themselves in order to light performers whilst sandwiched between multiple curtains.

The rigging detail comprised 136 motors from Liteup – a mix of quarter ton, half ton, 1-ton and 2-ton and including the five Kinesys vari-speed hoists – which were shared between lighting, audio and video departments, together with 143 metres of Litec PR60 pre-rigged truss. Head rigger Steve Belfield worked alongside Toby Lee.

Dan Bunn worked closely with Steve to work out multiple rigging solutions for a show that had to be millimetre accurate when it came to the positioning of all the elements each day. This included getting one of the truss structures re-engineered to achieve a result not possible with any off-the shelf-product.

The lighting crew chief was Aiden McCabe, Ryan Harrington oversaw dimmers and the lighting crew was completed by techs Simon Carus Wilson and Mick Stowe, all working directly for the production. All were chosen by Richard for the tour and most had worked with him and Bruno previously. They were picked for their experience with highly theatrical shows as well as music concerts ... where attention to detail is crucial.

Overseeing everything on the road was production manager Peter van der Velde.

STARTING, BUYING, SELLING OR RE-STRUCTURING A BUSINESS?

Julius Partners provide expert analysis, strategy, risk assessment and advice to new or experienced business owners.

Most businesses operate on less than 5% net profit, often with inbuilt risk that is hard to see from the coalface. Some re-structuring is difficult and needs careful management of teams and owner mindsets.

If selling, our fees are less than most business brokers. We can negotiate and refer to expert lawyers and accountants.

Operating a diverse variety of businesses since the 1970's, we offer complete confidentiality secured by a deed, and transparency in our dealings with you.



JULIUS PARTNERS

Call Julius on 0408 498 180 or email julius@juliusmedia.com juliuspartners.com



COLD CHISEL

by Cat Strom

Photo Credits: Troy Constable / Louise Stickland

Troy Cassar-Daley has an aboriginal name for Jimmy Barnes that means 'rain man', however on Cold Chisel's recent *Blood Moon* tour Mother Nature threw more than that!

"I knew that we would be breaking the drought when the band decided to do 25 outdoor shows!" commented lighting designer Jeff Pavey. "It was not only the end of the drought - we had fires, smoke cancellation, emergency trucking, flooding and trucks trapped in WA. The rain hammered us in Victoria, Hunter Valley and particularly in Brisbane. Every single show had major weather or fire elements to it. I think Orange was the only show where it didn't rain however it was a 45°C dust bowl. I've never seen anything like it; it was like concrete dust, really fine and 15,000 punters were kicking it up. Plus, as it was so hot, there were no sides on the FOH so the gear got covered in dust and had to be sent away for cleaning straight afterwards."

Despite all of this, only one show was cancelled, A Day on the Green at All Saints Estate Wine Rutherglen, where the environmental situation and air quality was extremely poor. The Canberra show was lucky to go ahead as the fires were less than five kilometres away.

"On the setup day we had to leave at about 4 PM as the smoke was so bad at the site," added Jeff.

For the first time in fifteen years, the band decided to incorporate a video element: DiColor LED all housed in touring frames and a PTZ camera package for the touring production as well as additional camera packages for the venues requiring IMAG screens.

"I think it was just to do something a bit different as the last three tours were very rock'n'roll with a big wall of lights as that's what they really like," said Jeff. "These were supposedly the last ever Chisel shows so they wanted to go out with a big bang."

Jeff decided to hang the IMAG screens in portrait mode, saying he simply prefers it after experimenting at Splendour in the Grass and that he feels it looks bigger for the whole show. Also, portrait mode is Day on the Green's preference and they supply the screens on their shows, so it was a happy medium. After all, why have a 6ft high Jimmy when you can have a 20ft high Jimmy!

Video Content Director Rachael Johnston's brief was simply to put together a set of visuals that would be 'interesting and supportive without being distracting.' Consequently, she set about creating visuals

that the core Chisel audience could relate to while still being innovative.

"I spent a considerable amount of time just researching everything about the band," commented Rachael. "Throughout their career, they've had a very strong, consistent aesthetic. I wanted to stay true to that, while also creating a video show that looked visually appealing when transformed to the stage with Jeff's lighting design. From this research, I created a video deck for the band. They were really happy with most of it - they made a couple of requests based on personal connections to specific songs, and it all went from there."

The imagery used consisted of all custom content, using a lot of what Rachael calls 'Cold Chisel red' throughout the show.

A number of concepts that she had in mind would require a film shoot, so she contacted her good friend Brandon Specht, who is an action vehicle coordinator; he jumped on board as assistant director for a day.

"We secured a '70s Dodge Charger, some cameras and a drone and went out to some farmland near the Gold Coast," explained Rachael. "Miraculously the Charger's owner let us take it into a really dusty field to get some overhead shots of it doing donuts. We got some great drone and wheel-mounted footage which I ended up using for the song *Hounddog*."

"We also shot footage for *Killing Time*, which has become a particular favourite of mine.



Clear
Precise
Pristine
Performance

BUILT ON 4 DECADES OF LEGENDARY PERFORMANCE

The UPA is known for its ideal form factor, power output and versatile coverage. The ULTRA-X40 incorporates Meyer Sound's latest advancements in driver, distortion and phase response perfection into the do-it-all superhero form factor of the UPA.

Light-weight, highly portable with intelligent rigging and mounting options, the ULTRA-X40 has unprecedented versatility. This is the perfect multi-purpose loudspeaker for every rental inventory, portable application or permanent installation.

Set up your inventory with **ULTRA-X40**, the new do-it-all that's a bold revolution of an industry standard.

ULTRA-X40

A BOLD REVOLUTION OF AN INDUSTRY STANDARD

As this was a new song I didn't know much about the background, but the music and lyrics conveyed to me a dark, desperate crime scene. Cold Chisel has featured this content in the *Killing Time* film clip released recently, which I'm really happy about."

For *Breakfast at Sweethearts* Rachael wanted to convey that raw King's Cross life in the '70s as King's Cross is really central to Chisel's early days. The photographer Rennie Ellis got some incredible shots of locals in the Cross during the '70s, and she thought they would be perfect. She approached the Rennie Ellis Photographic Archive, who kindly licensed Rennie's King's Cross collection.

"I was really pleased to be working with Jeff again for this show," Rachael said. "He worked brilliantly to colour match the lights to the visuals. I particularly loved the overall scene that Jeff and I worked on for *Four Walls*. We created a theatrical 'prison' on stage—a still image of a brick wall which I had graded, with Jeff pointing non-moving lights from the ceiling vertically downward to create a prison bar effect - simple and very effective."

Rachael used live camera for a few of the songs, applying a creative treatment in order to match the lights and the general Cold Chisel aesthetic. For *Getting the Band Back Together*

and *Cheap Wine*, a five-way camera split was created, so they were able to show each band member on screen at the same time.

"I operated all the visuals live using Resolume visual software and Creative Lighting supplied the LED screen," added Rachael. "For the five-way camera split, I had the brilliant Shane Budini helping me with four PTZ cameras on stage, and I used the main camera feed from the IMAG for the fifth camera. We put these signals into an eight-way quad preview splitter, usually used for previewing cameras. I ingested these signals and then cropped and positioned within the video raster, often adding a creative frame or treatment to keep it interesting and matched to the lights."

Having worked together with Powderfinger over ten years, Rachael and Jeff already had a solid understanding of each other and enjoyed working together again.

"With the video at the back it's always good to have something that you can complement although it's a totally different dynamic to doing a big rock show where it's all about lights," said Jeff. "All I'm really doing in a lot of the show is framing the video, complementing what's already there. Having said that, there are of course some big lighting accents too."

The lighting rig had to be restricted in size due to truck space as there were only four trucks in use whilst Elton John who was playing the same venues had 38 trucks. Only one truck was for lighting so fixtures were chosen for their power and versatility and were all pre-rigged so the rig was up in a couple of hours. Jeff is very proud of the fact that after 25 shows, all in horrendous weather, not one light went down.

The Robe MegaPointe is currently Jeff's favourite fixture and so it was no surprise to see forty of them all over the rig. The three above stage trusses and the front truss had them interspersed with GLP X4 LED Wash, a total of 32, whilst two side trusses per side saw them sharing with a total of eight GLP X4L LED Wash. Eight more were located at the rear of the stage on the floor along with lots of Molefays. In fact, the rig was littered with 44 Molefay 2 Lite DWE and 13 Molefay 4 Lite LED.

"I'm a big fan of side lighting, in fact, I can't do a show without it!" said Jeff. "I'd prefer to have side lighting any day over backlighting, it just adds so much depth and gives you something in all of the shots."

Out on the wings were 16 LightSky Aqua Beams helping to add width to the stage and chosen by Jeff for their brightness, in



Colin Ellis



Dave Jackson getting creative





fact, Jeff says they are just as bright as the MegaPointes.

On the front truss were six BMFL Beam Wash with two more on the first mid truss and three on the rear truss. Jeff used the Follow Me remote follow spot control and automatic performer tracking system with the BMFL Beam Wash, a fixture he likes for its good intensity and nice texture.

"It's my new little toy and I love it," he said. "I'll never go back to using followspots. Outdoors it's a little tough because you can only hang the front truss a certain distance from the

downstage edge as opposed to being in an arena and having it halfway down the room. But I just love that you don't have all the overthrow from a followspot, cutting through into other people. It was choppy in the stadium but it really made the performers pop out as the beam was really tight."

Jeff loves his smoke and although some of the gigs had plenty of natural smoke, he still toured four MDG HO Stadium Hazers and three Look Solutions Unique Vipers.

"I have to say the Aqua Beams' light fans on the wings looked amazing in Orange's dust,

you couldn't have hoped for a better look!" said Jeff. "I'd rather have six smoke machines on tour and keep two in the truck for backup because smoke is such an important part of the show. It's stupid to have a million-dollar light show and have \$50 worth of smoke as nothing reaches its full potential."

Jeff ran a High End Systems Hog 4 for control saying he's too old to learn an MA platform!

"I'm very happy with the Hog 4 and refuse to learn how to even patch an MA!" he laughed. "It's got me to where I am for the last 45 years."

THE LOOK

DRAPE HIRE
www.thelook-sydney.com

New Address: 17 Greenfield St Banksmeadow NSW 2019
Email mail@thelook-sydney.com • Ph 02 9797 6068 • Fax 02 9798 9243



Jeff and Colin

AUDIO

Cold Chisel was the first act to play at Parramatta's new BankWest Stadium and Colin Ellis, their sound engineer, was impressed by this new venue, saying he was surprised at just how good it was.

"I was expecting all the overhanging roofs to slap everything like at the MCG where you hear the snare drum about ten times like a shotgun!" he said. "But BankWest Stadium has a curvature in the roof and openings that seem to capture the sound and push it out of the stadium rather than reflect it. One of the crew said he was out in the carpark when he heard a loud clanging noise as if someone was hitting steel right beside him. He couldn't see anyone and eventually he realized it was coming from within the Stadium!"

Not surprisingly, Colin was concerned they may get hammered by the EPA but he didn't see any EPA presence at the gig. That probably won't become the normal!

Colin specified an L-Acoustics K1/K2 PA system from tour provider JPJ Audio, admitting it was basically the same PA setup as he recently used for Midnight Oil.

"The main hangs were mostly K1 with K2 on the bottom for wider dispersion and the

side hangs were K2," he said. "The delays have varied but at BankWest stadium JPJ implemented a ring delay of K1 suspended from the stadium roof rather than traditional delay towers which would have obscured the view for some of the audience. The reports that I heard from up in the grandstand sections were really positive. I think if there were any weaknesses it was behind the mix position back to the grandstand seating where it got a bit echo-ey. As usual, the JPJ crew have been great and have really looked after me. They work so hard to ensure everyone is happy."

FOH, Colin mixed on an Avid VENUE S6L utilising only a couple of onboard plugins. An Avid Profile is used FOH for the support acts, and as a backup if something tragic was to happen to the S6L.

Colin admits that mixing for Cold Chisel can be tricky, especially as they don't soundcheck.

"I do record with ProTools and then run Virtual Soundcheck just to get a start however it's not that successful," he added. "Every time you do it, you think that sounds great and then when the band comes out it's completely different. It never seems to sound anything like the Virtual Soundcheck does! To be honest, it's always a bit of a scramble at the beginning of the show

but the good thing about Chisel is they always come together."

The Yamaha CP70 electric piano often causes Colin grief as it tends to feedback a little with the bottom end. "You have to be careful with the low end coming off the PA getting into the piano and feeding back on you," explained Colin. "That's the main problem we've had trying to get a sub configuration and sub tuning that works for me yet doesn't upset the band."

Colin states that he doesn't have to do anything special for Jimmy's vocal, he just lets him go for it. "It's a rollercoaster ride but he's good!" he laughed. "When he's on fire he's astounding. I try to get a good solid mix and then punch up whoever is doing a solo to get them over the top. I like to get Ian's guitar over the top of everything because he's one of the few guitar players I've worked with you can actually do that and get away with it. A lot of people come to see him play so it's a big part of the show."

The band used Shure SM58 mics with the backup singers on SM89. Kez Kesby ran monitors on a DiGiCo SD5.

WHERE WILL IT TAKE YOU?



NEW A SERIES LINE SOURCE

The new A15 and A10 systems deliver renowned L-Acoustics concert performance and reliability for audiences from 50 to 5,000. Mounted on a pole, stacked on the companion KS21 or flown in vertical or horizontal arrays, the new A Series combines plug-and-play ease and international market acceptance. This versatile solution, with adjustable directivity, scales with the needs of your company and is your gateway to the L-Acoustics rental network. A Series can take you anywhere you want to go. www.l-acoustics.com

GROW!



Distributed by



www.jands.com.au





Lisa Reihana

Immersive Māori Creation Story Unveiled at Aotea Centre, Auckland

As museums across the globe grapple with the place of digital art and the complex issues it raises in terms of acquisition, curation and preservation, Auckland's recently refurbished Aotea Centre has embraced the medium, commissioning a stunning immersive floor to ceiling digital artwork *Ihi* by renowned New Zealand artist Lisa Reihana.

Easily accessible and far removed from the traditional gallery environment, anyone can amble up the flight of stairs into the foyer of the Centre and absorb this stunning depiction of the Māori story of how the world came to be. With this commission, the Aotea Centre has embraced the potential of digital art as an innovative means of display and as an opportunity to interact with the public.

Auckland Art Gallery Toi o Tāmaki Director Kirsten Paisley commented, "I am especially delighted that a contemporary work of architectural scale is telling this timeless Māori story in one of Auckland's most important public buildings. This commission is ambitious, brave and entirely transforms the Aotea Centre."

The Creation Story Behind The Creation Story

The path to the unveiling of the project at the end of January 2020 began eighteen months earlier, when the Regional Facilities Auckland (RFA) team began discussions with artist Lisa Reihana. Known for her multi-disciplinary work and particularly for her large-scale video installation in *Pursuit of Venus* [infected], Lisa relished the opportunity. "I was brought in way back alongside the architects. Discussion ranged across non-video, light-based concepts to video and utilising LED technology." Lisa drew inspiration from the local culture and the physical space itself. "The architects were opening up the foyer of the building creating two spaces for the artwork, from the floor all the way to the top of



the building. This started me thinking of two screens and two Māori figures, Earth Mother Papatūānuku and partner Ranginui with Tāne pushing them apart and emerging from the heavens into the land of the living.” Hence the name ‘Ihi’, the division and the separation.

RFA approved the concept and with the screen dimensions to hand, Lisa set to work. “The two screens were different sizes, and both had unusual aspect ratios. I had to shoot

the video with this in mind, constantly re-referencing the pixel aspect ratio.”

Alongside the development of the concept, RFA and the architects were working with ULA Group to custom design and manufacture the LED screens and for advice on power and data requirements.

For the digital display, ULA Group manufactured fully customised VuePix Infiled

3.9mm QE LED panels, totalling over 7.5 million pixels and a perforated mesh screen border for a seamless fit into the space. “The real challenges on this project were firstly acquiring the exact measurements in an operational construction site, and then secondly catering for the structural angles, which we did at the top using stepped modules, 125x125mm in size,” explains Garth Reynolds, Branch Manager of ULA Group NZ.

SHINE ON STAGE

WITH ELATION PROFESSIONAL.



**ARTISTE
PICASSO™**

- Full CMY Colour Mixing • Linear CTO Colour Correction • 8-Facet and Linear Rotating Prisms • 4-blade rotating framing system



**PROTEUS™
HYBRID**

- IP65 Rated 3-in-1 Hybrid Beam, Spot, Wash • Full CMY Colour Mixing • Linear CTO Colour Correction • 8 Rotating and 14 Static Gobo's



DARTZ 36Ⓢ

- True led beam/wash moving head
 - 15 Static Gobo's
 - 6 Facet linear and 8 facet Individual rotating prisms



1300 ULA GROUP

INFO@ULAGROUP.COM

ULAGROUP.COM



COME AND SEE OUR EXCITING NEW PRODUCT RANGE AT ENTECH ROADSHOW

AUCKLAND EMBRACES DIGITAL ART



Garth Reynolds (ULA Group), Lisa Reihana (Artist), Jacinda Ardern, Cuono Biviano (MD – ULA Group)



Lisa Reihana & Jacinda Ardern

“Attention to detail was critical. Our VuePix Product Manager Nathan Wright was overseeing quality control at our VuePix Infilled factory throughout the whole manufacturing process. The whole team worked closely with the engineers, the team and Auckland Live, the performing arts arm of RFA, to deliver a customised solution, the perfect fit for this unique project.”

Once the design was approved, the team was able to confirm the exact pixel ratio for Lisa, with the left screen measuring 1792 by 2464 pixels and the right 1408 by 2464 pixels.

Lisa then created the content pixel for pixel to match each video wall, avoiding any distortion or pixilation due to scaling. “Nowadays I bring quite a lot of experience to non-standard projects,” Lisa chuckles. “As the creative I know that discussion is key. We have our concept conversations, our digital discussions and we reflect on the feeling that we want the audience to have when they see

it.” Lisa cites the example of the lower level. “There are several viewing angles where you can really appreciate the scale of Ihi from the entrance level but the furniture on the level below also provides a comfortable place to just watch and contemplate.”

The Technical Production team at Auckland Live worked extremely hard to find the best possible software solution to drive the content. Much research and testing by Auckland Live’s Senior Vision Technician, Francis van Kuijk, went into the decision-making process, testing various types of hardware and software in conjunction with the artist to ensure an optimum result. The final solution was that the content was controlled by Millumin 3 software, running off Mac hardware, connected to a BlackMagic eGPU Pro to integrate with two NovaStar MCTRL 4K processors.

The local HTS Group team was appointed as system integrator, working closely with the

engineers on the whole installation side of this project. “The quality of HTS Group’s work was key to the success of the project,” comments Garth.

As always when working in a live entertainment venue, staying on programme was essential and the support structure was erected within a week and the panels in five days. Project management by Joey Rabel, Auckland Live Manager Technical Equipment, coordinating the logistics of the installation with Lisa Reihana and her team, building renovation work, scheduled events and power and data installation, was key to ensuring the artwork was completed for the unveiling on 29 January.

There followed more testing, with the actual artwork running. Garth was pleased, “The real success of this project is that there were no issues at all during or after the build, and the screens have been running smoothly now since 24 December.”



For Lisa though, work continued, “There was a lot of testing of the footage on the screen because LED panels have a very different feel, the light is sharper and the contrast greater. I needed it to look the same in the Aotea Centre as it did in the studio.”

Garth concludes, “Working with a distinguished artist like Lisa Reihana to bring her iconic work of art to life was an amazing experience and a true honour. The support and expertise of the Auckland Live team were terrific and played a huge part in bringing this project to fruition.”

Cuono Biviano, Managing Director of ULA Group adds, “I am very proud of the team at ULA Group and all who have been involved in this amazing project, delivering a unique platform to celebrate Māori culture in the Aotea Centre. Our commitment to the arts and ongoing investment into digital technology is truly reflected in this iconic large-scale digital artwork, the first of its kind in New Zealand.”

The Unveiling

The installation was officially unveiled by Prime Minister Jacinda Ardern in her capacity

as Minister for Culture and Heritage at the end of January. Auckland Mayor Phil Goff, also in attendance, considered the work to be a significant drawcard to Auckland’s Aotea Arts Quarter. “Like other world-class cities, such as Melbourne with its Federation Square, and London with the Southbank, Auckland needs public spaces that proudly showcase our identity and our stories. Ihi is not only a fitting centrepiece for our Aotea Arts Quarter, it is also an important addition to our rich Māori arts and cultural landscape.”

THE INDUSTRY’S PREFERRED RENTAL & PRODUCTION LED DISPLAYS



DB-Deep Black

DESIGNED FOR FINE PIXEL PITCH RENTAL APPLICATIONS

- Pixel pitch 1.5-3.4mm
- Ultra-black LED technology
- State-of-the-art image quality
- High refresh rate • Fast locking system
- Cable-free connection (optional)
- Straight or curved



ER-Rental Series

DESIGNED FOR RENTAL APPLICATIONS

- Pixel pitch 2.9-10.4mm
- Exceptionally high brightness
- Black LEDs for ultimate image quality (optional) • Ultra slim
- Convenient handling • Fast build
- Easy alignment • Hot swap
- Indoor & outdoor options



AC-Air Carbon

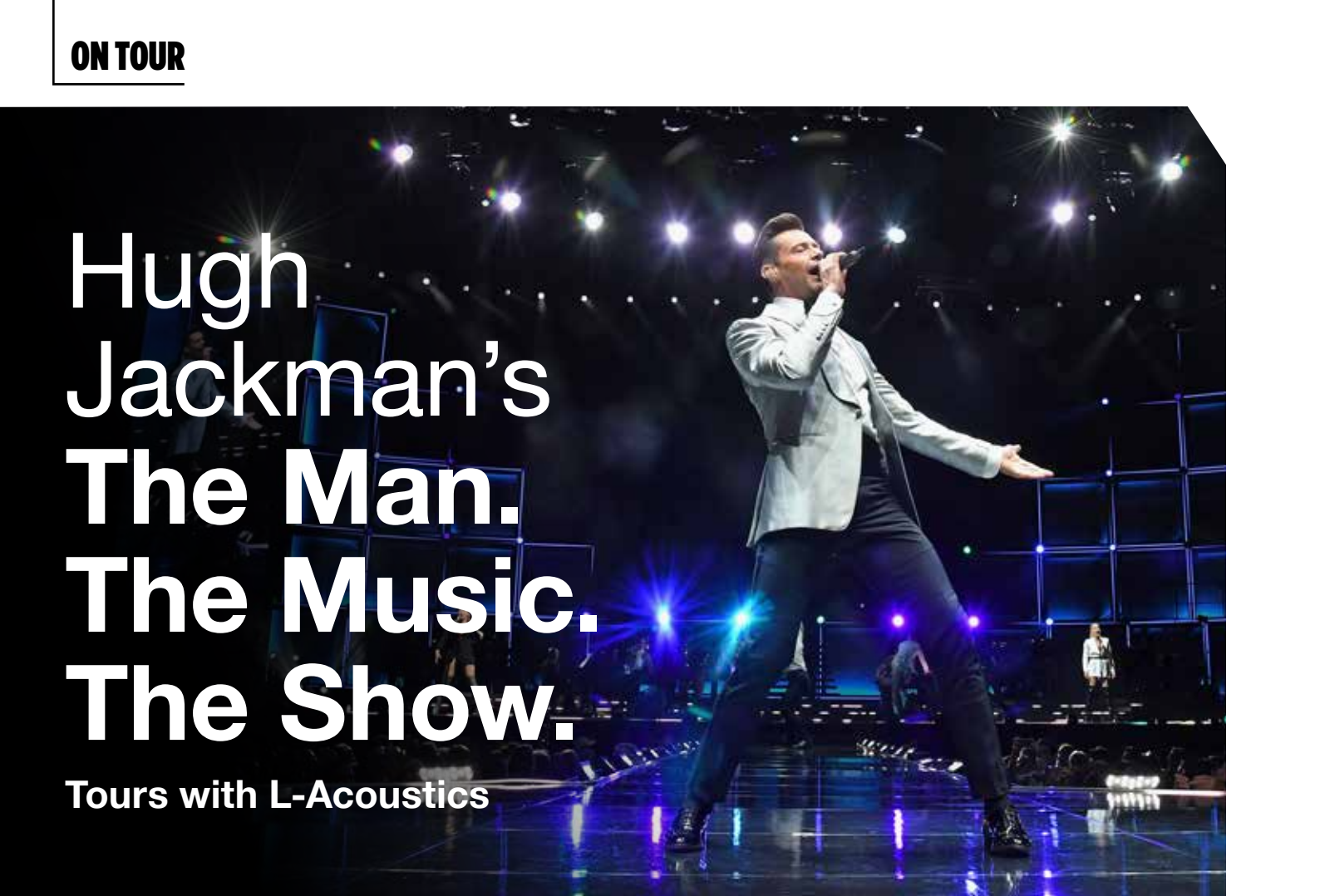
THE MOST ADVANCED TOURING SYSTEM ON THE MARKET

- Pixel pitch 3.75-5.35mm • Fast build
- Super lightweight • Rapid transport
- Intuitive coupling system • IP65 rated
- Easy maintenance • Straight or curved
- Full range of accessories

VUEPIX
INFILED

1800 VUEPIX
VUEPIX.TV

COME AND SEE OUR SCREENS
IN ACTION AT ENTECH ROADSHOW



Hugh Jackman's The Man. The Music. The Show.

Tours with L-Acoustics

Hugh Jackman is easily one of today's most versatile actors, deftly switching between such disparate characters as Wolverine in *X-Men* to Jean Valjean in *Les Misérables* to P.T. Barnum in *The Greatest Showman*. But perhaps even more impressive is his singing voice, which led him to head out on a 90-show global concert tour known as *The Man. The Music. The Show*. Solotech served as the touring sound reinforcement provider and deployed an L-Acoustics K2-based system for Jackman's show, which showcased him performing material from both classic Hollywood and Broadway musical numbers, backed by a five-piece band and 14-member orchestra.

Sound Designer Colin Pink was involved in the project from an early stage. "From initial talks, it became evident that Hugh's show would be very dynamic and cross over from small intimate scenes with orchestral underscore to massive rock moments, the transitions of which could easily fall apart," he shares. "This

drove my decision to specify an L-Acoustics system, as I knew it would remain sounding effortless across these different styles. The K2 system is incredibly transparent for vocals and retains exceptional intelligibility across the varying volume levels."

With SSE Audio, now a Solotech company, kicking off the worldwide trek in the UK and Europe, Solotech System Engineer Alexandre Bibeau notes that the second and fourth legs of the tour visited A-market arenas across the US, Canada and Mexico. Performances were richly presented via main arrays of 16 K2 per side, each backed by six flown KS28 subs, and flanked by 14 more K2 as side hangs. Additional arrays of 12 Kara enclosures each addressed the extreme left and right seating areas, ranging from 180 to 220° depending on the venue, while three smaller arrays of eight Kara, on axis with the main PA, were used for upper level delay. "Those gave Simon Sayer, the FOH engineer, the opportunity to keep Hugh's vocal extremely clean and powerful, as this was a very dynamic show," Bibeau says.

Solotech also carried a quantity of short throw enclosures, including eight X8 and a dozen tiny 5XT, for extra fill applications, two additional ground-based KS28 subs for extra low-end impact, and 49 LA12X amplified controllers housed in LA-RAK II mobile rack units. Furthermore, Bibeau notably points out that he utilised two new L-Acoustics P1 processors and four Avnu-certified Extreme Networks AVB switches. "Our full system used AVB protocol with an analogue backup," he says. "We were using fiber to interconnect the switches, and the whole process was simple, reliable, and a great experience."

Simon Sayer was the man in the FOH driver's seat at a DiGiCo Quantum 7 console for the



infinity FURION series



S601 Profile

- 500W
- Blade System
- 7:1 Zoom
- CMY + CTO
- Animation Wheel



S401 Spot

- 350W
- 5:1 Zoom
- CMY & CTO
- Animation Wheel



S201 Spot

- 150W
- 2.5:1 Zoom
- Double Gobo & Colourwheel

WIRELESS SOLUTION
MADE IN SWEDEN



Standard Art-NET & WDMX
by Wireless Solutions



Clearlight Shows Pty Ltd

03 9553 1688

www.clearlight.com.au



Front: Monitor Tech David Courtney, FOH Engineer Simon Sayer. Rear: PA Tech Ricky Gallagher, RF Tech Randolph "Roo" Smith



duration of Jackman's worldwide trek, and his background as a sound designer, music producer, composer, remixer, and live sound engineer well prepared him for this role. "My prior experience as the front-of-house engineer and associate sound designer for the global tour of the Queen and Ben Elton musical, *We Will Rock You*, helped me know how to best bridge the gap between theatre and rock and roll sound for Hugh's show," shares Sayer, who has also worked with Hans Zimmer and A.R. Rahman. "But for either end of that sonic spectrum, I've always preferred L-Acoustics loudspeakers for their very natural reproduction of a wide range of dynamics and frequencies. Certainly the orchestral/band crossover element we had on Hugh's tour benefitted beautifully from the use of the K2 system."

To provide Sayer with the most consistent system performance each night, Bibeau utilised L-Acoustics' Soundvision system design and optimisation software for every show setup. "Soundvision is an extremely accurate and powerful tool," he says. "For this tour, I focused mainly on coverage and level optimisation. To me, it's very important that we give people sitting in the back rows essentially the same audio experience that we're giving to those in the first row. With Soundvision, we were able to deliver an incredibly clean sound

and tonal balance that varied no more than 3-5dB from front to back. The new Autosplay tool was a big part of that success—it's very efficient and intuitive—and I also started to use Autofilter on the tour's Australian run and think it's amazing!"

"Running 85 inputs with a full orchestra and live band in these big venues made this tour a challenge, especially with such a dynamic show, but I definitely think that L-Acoustics was the best option for us. And the worldwide support we got was just as great as the sound. Between L-Acoustics and Solotech, no matter what time zone we were in, I knew that we could always very quickly get an answer for any questions or concerns we might have had."

Sayer was all smiles with the results as well: "One of the high points for me was when Greg Wells, the record producer for *The Greatest Showman*, P!nk, Twenty-One Pilots, Adele and others, told me, 'The Hollywood Bowl show on the Hugh Jackman concert tour was one of the best sounding live shows I've ever heard. Nice work!' That's a huge compliment, and certainly some of that credit goes to this wonderful system."

"Those gave Simon Sayer, the FOH engineer, the opportunity to keep Hugh's vocal extremely clean and powerful, as this was a very dynamic show," Bibeau says.



LS WING

The LS Wing is an innovative hardware device which offers several products in one:

- a Wing for LS 1 / LS Core,
- an OSC/UDP hardware controller,
- a MIDI controller
- and a user programmable remote controller.

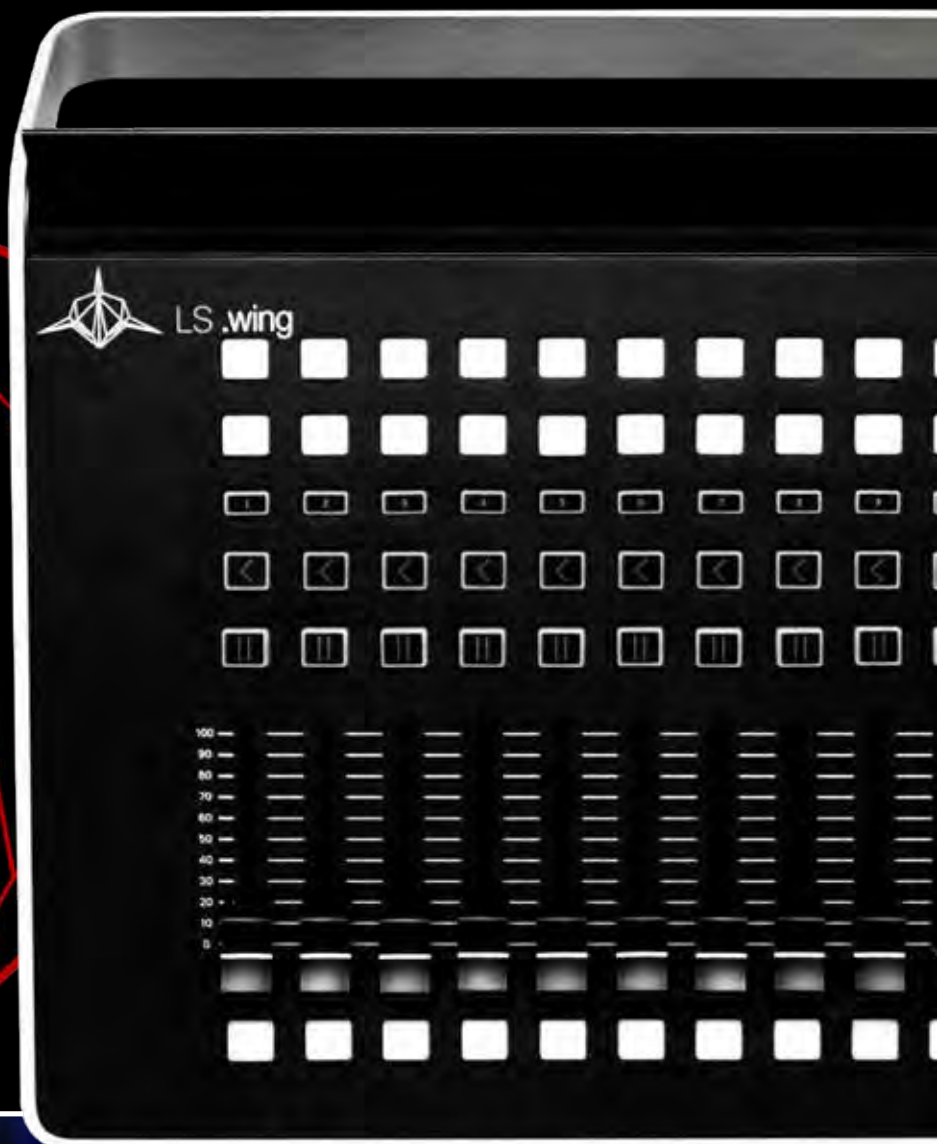
LS Wing can send/receive OSC commands through ethernet from any software or hardware compatible with this protocol. In addition, it can send/receive UDP messages, making it compatible with any AV device or software on the market.

LS Wing offers outstanding versatility to the lighting control market, as it can be configured to be compatible with all other brands of lighting systems.

It's 4 in 1 design makes it easily the most versatile and functional lighting controller on the market.

A total of four USB ports are provided, including a USB-B port, making it easy to connect to MIDI devices and charge smartphones and tablets.

In all four modes, LS Wing has a built-in ArtNet/sACN to DMX node offering two Direct DMX universes.



**P1 MINI LED,
I AM YOUR FATHER**



portman™
custom lights



**SHOWTOOLS
INTERNATIONAL**

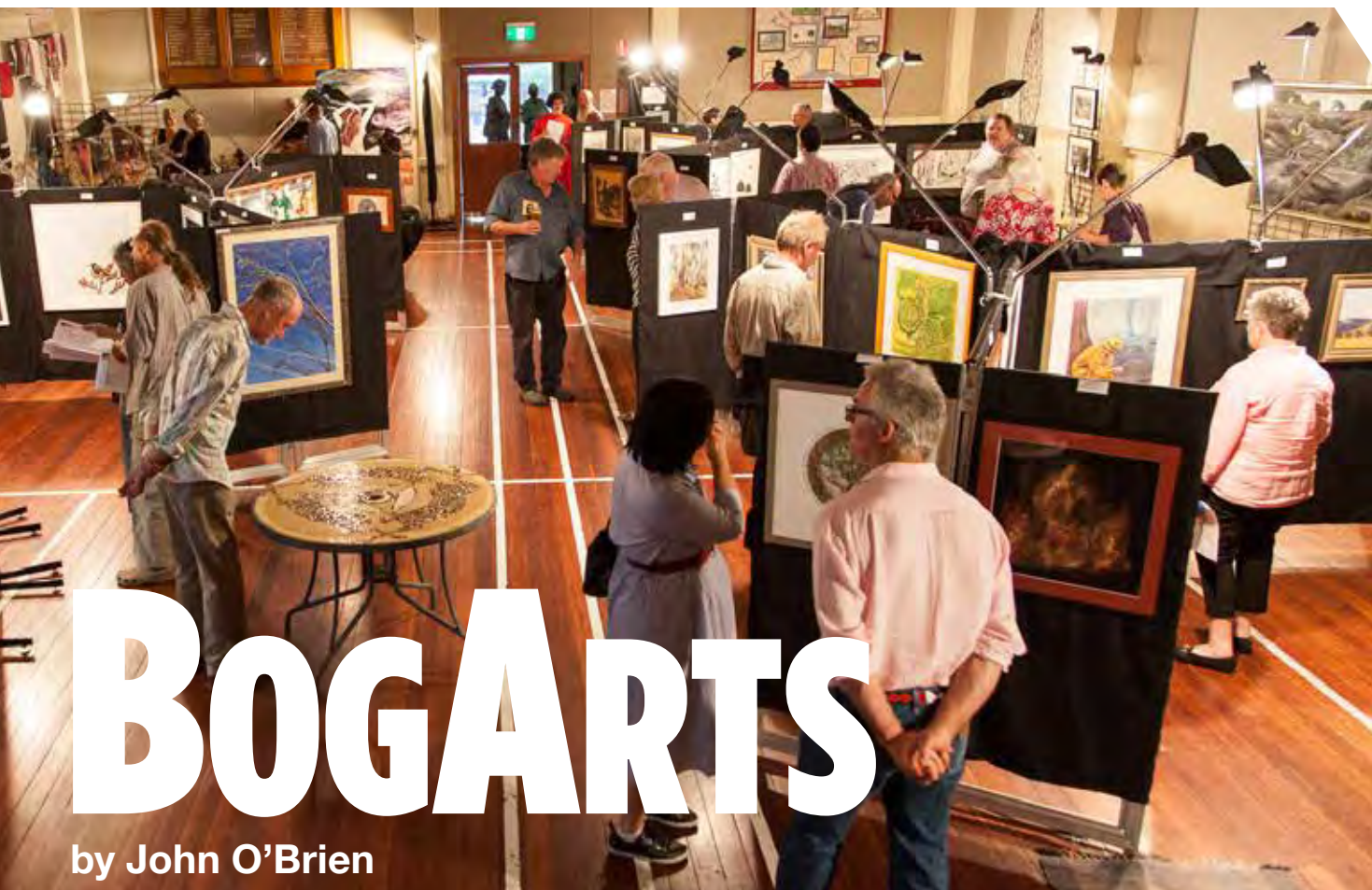
Exclusive Australian Distributor

www.showtools.com.au sales@showtools.com.au

**CHAUVET
PROFESSIONAL**
Ovation
Cyc 1 FC

GO AHEAD, UNDERESTIMATE ME





“A loose collective of loose units, inspiring each other to make and create.”

In 2018, a few local residents got together to see what we could do to promote art and creativity, inspiring ourselves and each other to keep on making stuff. The first step was meeting regularly to chat, and from that came BogArts.

What We Did

After a few small ventures, we took on the biannual Strathbogie Art Show and the previous organisers were rapt. Brainstorming, timelining, costing, refining and all the other planning stages occurred and, despite our initial restraint, soon expanded into a full-blown festival. Yikes ...

A simple indoor art exhibition was joined by indoor and outdoor sculptures, paintings, photos, textiles and even a video loop (that deservedly won a prize). A theme of ‘A Collection of Curiosities’ encouraged the oddest pieces from local artists and friends of the area. Helga Salwe’s retrospective photo collection and Nomad Art’s indigenous art

collection further added to 163 pieces entered for sale.

A fancy catered and boozy opening night with four-piece jazz band, interactive dance performers and general decoration weirdness kicked it all off. Our independent judges had a fantastic time sifting through the broad collection of oddities and eccentricities before announcing prizes and sponsors, then celebrating with lots of happy people. A full weekend of art show followed before resetting the whole room on the Sunday night. By this time, our crew were toast but we dug deep and got it done.

Our crowning jewel was the Bridge to Bridge sculpture walk, running all week and for ever

more. Participants were encouraged to install anything ephemeral, organic or compostable along the creek that glides around the township. As a protected and ecologically sensitive area, the only materials allowed had to be natural. Many of the pieces were brilliant.

And this part was all completely low-tech. The only electronic devices anywhere near the creek came from Min Hunter’s esoteric soundscape recordings and playback. A cool portable battery powered kit - Kaleidoloop sampler by Critter & Guitari replayed through a Roland AC-33 amp. Otherwise, it was all nature ... in loops.

The final weekend started with a spoken word performance. 24 local orators gathered at the local church and delivered their finest repertoire to a full house. We heard a range of original pieces in many styles and a bevy of classics to boot. For the timid of voice, there was a 12 and horn on a stick with a trusty 58. I didn’t use it for my rendition of ‘Said Hanrahan’ (voice projection and all that.)

Some quick roadie work got the speaker back to the hall, while the church morphed into an inspirational singing workshop. Fine voices, a fine leader (thanks Di) and some lovely natural



acoustics had the room filled with sonorous melodies and harmonies.

To cap it all off we arranged a crazy dance and dress-up night. More decorations, more booze, more food and Hello Tut Tut for sonic mayhem and funky rhythms. Wild and crazy costumes were donned for a cracking gig. A disappointing turnout from a normally very receptive community was the only sour note. Maybe the 'Curious Gypsy Punk Masquerade Party' theme got the old biddies confused.



How We Did It

After working out what we wanted to do, regular meetings concentrated on how we were going to do it. Being local and thrifty, we didn't have much to play with. That's when creative design and planning kicks in. We set a budget, got on to local businesses and community groups to help us out and were awarded a grant through the local shire.

Most of the extra monies went towards advertising and insurance. We ran a campaign

over many platforms - print / online / organic word of mouth - but needed to pay for some of it. We built a slick website and prepared some funky flyers to print and distribute.

Where we could scrounge, we did. Where it made sense to invest, we did. Our main asset was lots of free labour - ours! We held a few sheltered workshops to make decorations for the otherwise drab room. Many metres of bunting were fuelled by many more pizzas from the community oven. We

100% WIRELESS

The most reliable battery powered lighting technology for film, studio, events and more



Up to 20 hours
seamless runtime



AsteraApp
intuitive control



The most reliable
wireless DMX



IP65 waterproof
housing



1300 ULA GROUP

INFO@ULAGROUP.COM

ULAGROUP.COM



COME AND SEE OUR EXCITING NEW PRODUCT RANGE AT ENTECH ROADSHOW

spent many hours planning for and then even more accepting, curating and hanging 160+ artworks. Setting up the room was a big job, but we brought in the mobile scaffold from home to make it easier.

Tech and Staging

With access to some art stands, we borrowed more from a nearby arts group and covered them strategically in black fabric. The Hall is lit by harsh OH flouros, so display specific hire lighting was budgeted, ending up with a whole bunch of QIs on arms. They showed up the art pieces a treat, at the cost of heating up the whole room on a warm spring night. I shoulda known better, once being a trog and all. I may have also cooked a band or two in the past!

Cheapo LED floods borrowed from the school, a wonky old mirror ball for the corner, strip lights from someone's porch, every lamo LX effect lying around - they all got incorporated, all cost next to nothing and all looked good.

PA Upgrade

Simultaneous to the whole festival, I applied for a shire grant to upgrade the PA facilities in our local Memorial Hall. We have an old pair of mounted EV 15 and horns driven by a trusty Yamaha amp. The old 16-4-2 desk has seen better days, but it all still does the job OK.

Under auspice I got a pool of funds together, adding some more portable powered speakers that could double up as wedges, fills or outdoor along with a few more mics to supplement the beaten-up old kit. I also specced a sub for outdoor gigs where we have our pizza nights weekly over summer.

I did my research and waited until Integrate to catch up with all the distributors and talk

turkey, wangling fine deals on some sweet FBT speakers and Sennheiser mics. Thanks guys - you know who you are.

On the final gig night, I rigged all of the funky new FBT X Pro 110A stage monitors and ran lines ready for the band to arrive but let go of FOH. I regularly mix in this room but rarely get to enjoy myself doing so. It's too much like (unpaid) work after all. So, I handed over to Jack Mithen and went to enjoy a guilt free beer or two! Jack did a great job and the band sounded awesome on stage and off - I even had me a bit of a boogie on the floor, yeh. Finally felt a kick mic in this room too - the Sennhesiser e-602 was a nice addition.

Why We Did It and How It Turned Out

Because art. Because we all care (sometimes too much). Because we were looking for a fresh take on the often quaint country art show.

And what we got was far from twee. Oddball, interesting, curious, even avant garde, along with a generous mix of more traditional faire. We had some awesome entries and the breadth and depth of works were inspiring. It was even a bit much for some ("...not enough landscapes, dear."), which means we succeeded on that count!

Of course, rotten luck intervened and the heavens opened up with a vengeance during the exhibition weekend. We still got solid numbers through the doors but many more stayed away.

All of the carefully prepared outdoor works also started their decay process in a hurry. Some washed away on the spot, some degraded a little and some are still there

several months later. Which is exactly what we wanted - just much quicker than intended.

The Learnings

We advertised festival dates but many took those as art show dates and we lost a few punters. We encouraged ambiguity in the artworks and staging and fully achieved this goal but our advertising may have been confusing as a result. Next time our message to the public will be clearer.

Display lighting as a concept was great but we employed the wrong technology. LED all the way next time. Opening night scramble was anticipated but we still cut it a bit too close for comfort. Live and learn ... maybe.

Perhaps overly ambitious in some areas, we still managed to cleverly cut the right corners and put on a slick set of productions on the cheap. The art show made money, the gig night lost some but we made that up later making and selling pizzas so it's evens overall.

It's A Wrap

Would we do it again? Dependent on how many other community caps I am likely to be wearing at the time, I'll see how I go. For the whole group - yes. We had a great time, put on an awesome set of events with minimal budget and all remained good friends to the end.

www.bogartsfestival.org

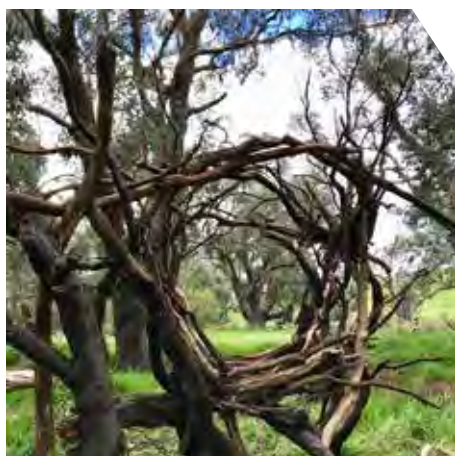
Sponsor thanks:

Shire of Strathbogie

Strathbogie Rec Club

Strathbogie Brewing Company

Maygars Hill Winery



PENDULUM'S 2019 TOUR

**Australian Electronic/
Drum-and-bass act
goes out on the road
with the eMotion LV1
live mixer**

Engineer Owen Charles (Yungblud, Jay Electronica, MF DOOM) worked FOH on the 2019 tour of Australian Electronic/Drum-and-bass act Pendulum. Since debuting in 2003, Pendulum have released three studio albums and have become one of the most acclaimed live acts in the world, thanks to their breakneck mix of Drum-and-bass and

aggressive rock elements. We spoke to Owen to hear why he chose the Waves eMotion LV1 live mixer and Waves plugins for the tour.

Discussing the versatility of the software mixer, Owen explains, "For Pendulum at FOH I used three touch screens with two Icon Platform M Controller fader banks. We have two Waves SoundGrid Extreme Servers



AVATUS

NEXUS

STAGETEC

Dante Domain Manager™

 **Dan Dugan**
SOUND DESIGN
WWW.DANDUGAN.COM

TiMax

 **Merging**
AUDIO FOR THE NETWORKING AGE

DirectOut
TECHNOLOGIES

 **GlenSound**

 **DIO**
DANTE INPUT/OUTPUT

Smart pi

 **EOC**
EDC ACOUSTICS

Visit us at the ENTECH Roadshow - Australia's one day AV Expo
March 2020 in Perth - Adelaide - Sydney - Melbourne - Brisbane

P | +61 2 8011 0500
E | info@tm-systems.com.au
W | www.tm-systems.com.au

bringing technology together



with one running as redundant, one DiGiGrid IOC for FOH Local I/O. On stage we use four SoundStudio STG 2412 stage boxes, with one SoundStudio pair running as redundant. Since redundancy is extremely important for us, we decided to split the stage inputs to two sets of stage boxes, one running on input A to the LV1 and the other running to input B. That way, if one of our stage boxes goes down, or we lose connection from FOH to stage, then we can simply switch to the B inputs on the eMotion LV1 mixer with a push of a button (User Defined Key) and continue the show with no problem. I also have the eMotion LV1 software running on my laptop in case something should happen to my main computer in transit, so I can simply connect my laptop, load my latest show file and continue as normal."

On choosing the LV1, Owen adds, "There were many reasons we decided to make the switch to LV1. The first is the power of the plugins; Rob (Swire-Thomson, Pendulum's vocalist) and I have been using Waves plugins ever since we started mixing, and we were both very excited to have the full package available to us in the box without any external devices needed. Rob has always been involved with the FOH mix and was looking forward to having the ability to go through the mix whenever we wanted."

Discussing the sound of the console, Owen comments, "The desk sounds amazing. The preamps are extremely clear and punchy, the internal processing of the digital audio is excellent and it's so easy to use. It's designed for mixing, and everything you need is right at your fingertips. The custom fader layers are very powerful and allow you to condense huge complicated projects into a very manageable workflow. It is also very scalable; I have done both huge headline shows and smaller club gigs with the LV1 system. For Pendulum, I have a relatively large FOH setup,

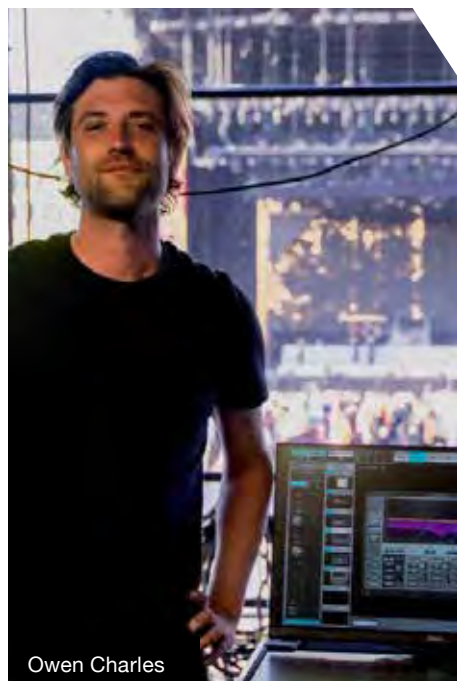
but with my own setup I can scale it down to just three Pelican cases and fly everywhere with it! It's also an extremely stable console that is an absolute workhorse. Finally, it's very quick and easy to set up. I had a festival show recently with U.K. artist, Yungblud. Our tour bus broke down on the way and we eventually arrived on site 30 minutes before our performance began. I had FOH set up and everything line checked with five minutes to spare!"

Talking about his must-have Waves plugins, Owen says, "It's very hard to whittle it down, as so many have become instrumental for me. I would include the Renaissance Maxx bundle as one plugin since I use the Renaissance Equalizer and Renaissance Compressor on every mix I do. They both just work; the EQ is very powerful and sounds great. With six bands available, it has you completely covered, and you can even take it off L/R mode and EQ each side separately for extra stereo width. The Renaissance Compressor can sound very transparent even at higher levels of compression, and I love having the option of choosing an optical compression sound or a warm one. It's great having the sidechain feature as well. The Renaissance Bass is an absolute must-have, and I love using it on my kick and toms to add that extra weight to stand out against the huge sub frequencies. Next would be the CLA-76 Compressor/Limiter; it's a classic compressor that Waves have done a great job emulating. I use it on vocals, bass, snare and of course for my parallel drum bus set to 'all buttons mode' to smash the drums and give them that larger-than-life sound heard on countless hit records."

"I have really gotten into the GEQ Graphic Equalizer using the modern component. It's great on the matrix bus, but I really love using it on guitars and vocals as well. It sounds great and gives you easy access to really

shape the tone of any problematic sources. I really enjoy setting it to 'Draw' mode and swiping your finger across to quickly try different settings and perfecting the sound. The Manny Marroquin Reverb is also great. Previously I have struggled to find a perfect reverb for vocals, but when I demoed this reverb it just worked. It's great for small amounts of subtle reverb or larger, more affected settings. It always seems to interact really well with the room and is so easy to dial in. Finally, I have to mention the C6 Multiband Compressor. When I first used it on live vocals it was an absolute game-changer. Having the two floating bands is really useful for finding those annoying frequencies and taking complete control over them. If I were stuck on an audio-mixing desert island, then the C6 would be the one plugin I would take. You can really control and shape any source with it as it is such a powerful plugin."

Owen continues, "I would also like to give honourable mentions to Waves' InPhase, with its dedicated live components (for aligning my drum samples to the acoustic kit, bass DI and mic, and multiple guitar mics); the API 2500 compressor; Waves Tune Real-Time; the F6 Floating-Band Dynamic EQ plugin, which is so powerful and has started to take the place of the C6 on certain sources." On using Waves' X-FDBK, a one-of-a-kind plugin which automatically cuts frequencies that cause feedback, he says, "When I started working with Yungblud, the first thing I did was buy the LV1 and put everyone on IEMs. We began with me doing monitors from FOH and being able to take the desk everywhere with us, which was such a life saver. Using the X-FDBK to ring out the wedges saved me so much time and effort. As long as you're not trying to get the monitors far too loud, then it works so well at taking out any trouble frequencies, in seconds. Plus, I loved seeing the look on the in-house engineer's face when they realized the desk was EQing the wedges by itself!"



Owen Charles



NEW ZEALAND'S ONE-DAY A/V EXPO RETURNS IN WINTER 2020

ENTECH

ROADSHOW GLOBAL

Featuring The leading providers of
**AUDIO,
LIGHTING,
VIDEO & STAGING**

ENTECH NZ 2020 EXHIBITORS



Electro-Voice

EPSON
EXCEED YOUR VISION

Fiasco



JPRO



mdr
Sound & Lighting

Metro
HIRE & SALES • LIGHTING • STAGING • RECORDING

Music Pro Audio
WORKS

nsL
Audio | Video | Control



R||RIEDEL

SHOW
LIGHTS



OFFICIAL COMMUNICATIONS PARTNER

R||RIEDEL

DON'T MISS OUT - BOOK YOUR SPACE NOW! EMAIL STEVE@JULIUSMEDIA.COM

CHRISTCHURCH
THUR 30 JULY / TOWN HALL

WELLINGTON
TUE 4 AUG / MICHAEL FOWLER CENTRE

AUCKLAND
THUR 6 AUG / SHED 10

www.entech-roadshow.com

Kat Harding Freelance Video Tech

by Toni McAllister



When you've reached your career goal at the ripe old age of 35, where to next? That's the question I sat down to discuss with Kat Harding, freelance video tech. The woman is an absolute machine. She's got skill sets and experience that range from projectionist, media server programmer, director and camera operator to systems engineer and AV technical supervisor. Her resume reads like a festival line up. She barely stops to come up for air. And she is modest to boot.

So Kat, how did you get into AV?

My love of AV started back in high school with cameras. I wanted to be a music video director. I had a little Sony Hi8 camera and was always capturing everything. Not that I did much with the footage.

After I finished school I took a year off and tried to figure out what I wanted to do. I did lighting courses, did some stunt training. I really wanted to get into the movies. I didn't know how I was going to do it. I was just trying different things.

Then I saw an audio engineering course at SAE and I thought I'll give this a go. It was all live recording and it was kind of cool but I didn't see myself doing it for a career. I had more fun setting it all up rather than operating it.

I saw a job advertised for an AVPS at the Brisbane Convention and Exhibition Centre. I had no idea what that was, but thought I'll give it a go. I had no experience, I was coming

in fresh, but they were happy to take me on and train me up. I was there for 9.5 years and worked my way up to a senior tech role and Production Supervisor.

What was the next step from there?

I built many connections in the industry outside of BCEC, one in particular was with TDC. I was working with them on the 2013 series of Big Brother and then had the opportunity to move to Sydney with them. I spent over 2 years fulltime with them and learnt a whole new world of video.

What was one of the highlights from that period?

It would have to be building projections for Vivid, some of which have gone onto winning industry awards.

What's the best building to project onto?

MCA in Sydney, the location and scale of the building is ideal for the impact of building projection.

What is the weirdest thing?

Projecting onto a 5 storey high, 70 metre long graffiti artwork in Melbourne for White Night in 2015. Definitely the weirdest and also my favourite building projection that I've worked on.

Tell us about your festival work?

I work for various festivals like Splendour, Falls Festival, RnB Live and Groovin the Moo doing various roles including camera op, directing and RoboCam op. In 2017 I was RoboCam op for LCD Sound System and got on really well with the touring director. Which then lead to the following year working with Vampire Weekend at Splendor and Fuji Rock in Japan. Being on stage at Fuji Rock with over 50,000 people in the crowd, it was insane. It would have to be one of my favourite experiences in my career.

Where have some of your other networks taken you?

Building networks in the industry is extremely important, one example was from when I worked at the Entertainment Centre in Brisbane back in 2011, I was able to be introduced to the Vice President at the Colosseum in Las Vegas and was able to do a venue tour when I went on holidays to see one of the shows there. Once I was there, I knew that's what I wanted to do. I wanted to tour and do concert work.

So when I came back I contacted the Colosseum again and asked if I could come over and do an internship. It's unpaid, but that was fine as I just wanted the experience. They said sure, come over we'll intro you to the video guys and you can hang out with them for five weeks. First job they gave me was like an initiation. We were doing the section in Celine Dion's show where it's a hologram, and my job was to twin two projections and clear

the stage within 30 seconds before getting crushed by the stage lift. It was awesome and insane but I nailed it. As much as I enjoyed the intense pressure of that task I preferred sitting in the engineering seat next to the director for the rest of my time there.

And how was Celine?

After the first show, I said "I will stop bagging her out, she's amazing". Her shows are mind blowing. Things I'd never seen before, with automation, projectors and screens being controlled by media servers. I went back again in 2018 for Elton John's last shows as a resident at the Colosseum. Again, not necessarily an Elton fan, but these are iconic people. And last year I had my ultimate icon moment, I got to work on Janet Jackson's show. My whole reason for being in this industry was to work on her show. So now, cool, tick that off the list, I can retire.

What's the next thing to tick off the list?

I don't think I've come down from that yet. I'm content now. I've peaked early. I really want to do more camera directing. My end goal will be touring camera director.

It's a pretty impressive list of people you've worked with.

Yeah, it's a good list. But there are other people who've done great things. But this is my little list and it's pretty cool.

What other work do you do?

I work with the media server team for the Australian Open and Laver Cup, some of my favorite teams of people to work with. I also love being a touring technician either as camera op, projectionist, system tech, engineer, led tech or whatever the role they need me for.

Has any show gone hideously wrong?

Not really. I trust the systems. Projector lamps go, LED screens lose a panel, I've lost power – but nothing disastrous. You've got your backups going. You try to have the confidence. But the key is to remain calm.

How do you think you learnt to stay calm under pressure?

I think it's lots of corporate jobs, you learn how to handle the intensity. You can't be too comfortable and content. If you don't have just a little bit of nerves, something will be sure to go wrong.

So what are some future trends to keep an eye out for?

Technology is always evolving at a rapid pace. I am keen to see what capabilities media servers will have in the future.

Do you have a role model?

Not really, I get my inspiration from working

with people who are passionate about what they do and motivate me.

You've done so much, where do you find the energy?

I'm driven by the joy of it. I love what I do and that motivates me every day.

Any advice you'd give women coming into the industry?

Don't be scared. Come in knowing you're equal. I never felt like I was missing work because I'm a woman. Be comfortable with who you are, know you can do what the guys can do. Come in and just be powerful.

There's been times when I've doubted myself. There's been times when I've faced some challenging circumstances and not wanted to work in this industry anymore. But I just make sure I surround myself with respectful people.

Any parting words of wisdom?

Always feel confident in what you are doing. Even if you have a little bit of doubt in your mind, show confidence. Always check your backup lines. Don't get so stressed out by it all. Don't worry if you make a mistake, we're all human. Don't take it personally if equipment fails. Move on. Stay calm.

Do you have a superpower?

Not at all, I'm just another video tech.



**NOT ANOTHER
BAD TRIP!**

See the future of ultimate
**Power Control for the
Entertainment Industry**
at the ENTECH Roadshow.

CLIMBFIT CLIMBING GYM, KIRRAWEE NSW

Photos: Lyndon Marceau - marceauphotography

ClimbFit Kirrawee is a state of the art indoor climbing gym based in South Sydney, Australia. The facility includes over 130 top rope climbing routes, an expansive bouldering area with 60 routes, multiple lead climbing routes, three auto belays, cargo net, ladder and rope climbs, as well as a fully equipped gymnasium featuring modern machines, free weights, and a dedicated area for many weekly classes.

Owners Robbie and Sarah Josephsen and Steve Gardner realised that a quality sound system was called for to complement these impressive facilities. They turned to Jimmy Den-Ouden of Techroom for a solution.

It was determined that the sound system needed to satisfy several requirements:

- Even distribution of sound over the entire facility
- Quality music playback at all levels from background through to high level
- Provide clear, intelligible paging in all areas
- Adapt to allow DJ input for special functions

- Be reliable and easy for staff to operate
- Regulate volume levels such as to avoid noise issues with neighbouring properties and prevent damage to the system

An EAW speaker system was specified for the main climbing areas comprising six MK2396i full range speaker cabinets, wall mounted high and angled down steeply toward key listening areas. An SB180z subwoofer was installed behind the climbing wall to provide low frequency augmentation.

With the help of the great design team at PAVT, the entire speaker system design was plotted in EAW Resolution 2 as part of the sales process. This gave the ClimbFit team a good idea of how the system would perform before signing off on the design.

The gymnasium was fitted with four VFR109i speakers, with 12 ceiling speakers fitted to ceiling tiles in the classes area and an additional four ceiling speakers fitted to the change rooms. All drive equipment was installed in a rack, located out of the way in a locked store room to minimise dust ingress, a



AUSTRALIA'S No1 SPECIALIST LIGHTING COMPANY

chameleon-touring.com.au



big problem in a climbing gym!

The cabinet speakers are powered by a pair of Powersoft Quattrocanali QC2404DSP+D amplifiers, with three channels of each amp running an MK cabinet and the remaining channel powering a pair of VFR speakers. The SB180z is powered by a Duecanali DC1604DSP+D, while a 4 channel 100V amplifier powers the ceiling speakers across three separate zones.

The primary input to the amplifiers is via Dante, with an analogue backup. Dante is distributed through a Cisco SG300 series managed switch with a trunk into the corporate network. A Dante specific VLAN makes it possible to input Dante streams direct to the system from the main office if required. UniFi access points provide secured wireless network access.

EAW Greybox presets have been loaded to optimise speaker frequency and phase response, and apply correct protection parameters. Some minimal additional tuning has been done on the speaker system, also through Armonia. With plenty of headroom available the system never needs to run hard, so a low frequency tilt was quite comfortably able to be added to the tune. The result is rich, fulfilling sound everywhere. While the speaker system fully supports stereo operation, a mono summed mode has been

implemented to more completely distribute musical information.

Input processing, zone mixing and ceiling speaker EQ is handled by a Symetrix Prism 8x8, with local RDL input plates in the office and gym areas. The RDL plates passively sum and balance consumer type sources such as MP3 players. Twin balanced line level inputs allow for local connection of professional not equipped with Dante, such as a DJ mixer. A sound server in the audio rack allows continuous playback of full bitrate audio, while a switched paging mic is available in the office for announcements.

The Prism unit performs several functions that are important in the daily operation of the gym. Scheduled switching of the system and adjustment to volume levels throughout the day ensure the system is always on at the right time, and at the right level. This is done simply via preset recall of multiple parameters.

An ARC-2e keypad in the office allows staff a simple way to switch between sources, adjust volume in the climbing and gym areas, and turn the system on or off. The gym and attached class areas ordinarily track the climbing gym source selection, however this can be locally overridden via an ARC-K1e keypad, allowing class instructors to play their own music.

The Dante output streams are replicated on analogue outputs of the Prism such that a backup analogue signal path feeds all amplifiers for peace of mind. Testing of this feature showed the switch to be near imperceptible.

Owner Robbie Josephson has been impressed with not only the audio performance of the system, but also how well it has integrated to the daily operations of ClimbFit. He says "The system sounds great and works exactly like we need it to. Our staff have found it easy to use regardless of technical skill level. It was a big decision to invest in a pro level system, but I think everyone agrees it was the right choice to make."

Technician Jimmy Den-Ouden especially appreciates the integration that has been possible between the DSP, amplifier and speakers. He says "It's great to be able to walk about the space, tune the system to taste, and adjust zone levels all from my laptop. Meters are nice and all, but no substitute for ears and realtime response. The combination of Symetrix, Powersoft and EAW product takes the scope for turnkey integrated solutions to the next level."

Visit ClimbFit at www.climbfitkirrawee.com
Visit PAVT at www.pavt.com.au

Audio for Sport



Did you know that The P.A. People have been providing audio systems for Sporting Events for well over twenty years?

120 cabinets of Bose ShowMatch including Cardioid subs
Flown, ground stacked, tower lifter and Bose Cart options
Linea Research amplification | Yamaha consoles
Creative Audio monitor system

'STACKS AND RACKS' or COMPLETE SYSTEMS

Contact us to discuss audio for your next event!

Radios | CCTV | Wired Comms | Wireless Comms | SPL Net | Audio

papeople.com.au

IP Ratings

What do they mean?

by Simon Byrne

The IP Code, or Ingress Protection code, is an IEC standard (60529 to be precise) that classifies and rates the degree of protection provided by mechanical casings and electrical enclosures against intrusion, dust, accidental contact, and water.

The standard gives users proven information, rather than vague marketing terms such as “yes mate, it is waterproof!”.

For example, a Clipsal series 56 plug is rated at IP66 (the label ‘56 series’ not to be confused with the actual rating of IP66. Go figure.) is certified as dust proof and can have

water projected in powerful jets against the enclosure from any direction with no harmful effects. Very clear.

Similarly, an electrical indoor GPO wall mount socket could be rated IP22. It is protected against insertion of fingers and will not be damaged or become unsafe

during a specified test in which it is exposed to vertically or nearly vertically dripping water. IP22 or IP2X are typical minimum requirements for the design of electrical accessories for indoor use.

It is a two digit code, sometimes followed by a letter. In our example IP66.

In both cases, the digit 0 is used where no protection is provided. The digit is replaced with the letter X when insufficient data has been gathered to assign a protection level.

The first digit defines the solid particle protection. That is the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects such as your finger.

First Digit - Solid Particle Protection

Level sized	Effective against	Description
X	Unknown	X means there is no data available to specify a protection rating.
0	Nothing	No protection against contact and ingress of objects, including your finger.
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part.
2	>12.5 mm	Fingers or similar objects.
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, slender screws, large ants etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the operation of the equipment.
6	Dust tight	No ingress of dust; complete protection against contact (dust-tight).

The second digit indicates the level of protection that the enclosure provides against the harmful ingress of water.

2nd Digit - Liquid Ingress Protection

Level	Protection against	Effective against
X	Unknown	X means there is no data available to specify a protection rating.
0	None	Nothing - water will get in!
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect on the device when mounted in an upright position onto a turntable and rotated at 1 RPM.
2	Dripping water when tilted at 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle of 15° from its normal position. A total of four positions are tested within two axes.
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.
4	Splashing of water	Water splashing against the enclosure from any direction shall have no harmful effect.

Second Digit - Liquid Ingress Protection Cont...

5	Water jets	Water projected by a nozzle against enclosure from any direction shall have no harmful effects.
6	Powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
6K	Powerful water jets with increased pressure	Water projected in powerful jets against the enclosure from any direction, under elevated pressure, shall have no harmful effects.
7	Immersion, up to 1 meter depth	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 meter of submersion).
8	Immersion, 1 meter or more depth	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects. The test depth and duration is expected to be greater than the requirements for IPx7, and other environmental effects may be added, such as temperature cycling before immersion.
9K	Powerful high-temperature water jets	Protected against close-range high pressure, high-temperature spray downs.

In certain cases, you might see an IP rating given as 'IPX7', 'IP5X' or similar. Ratings that feature an 'X' somewhere in the code simply denote that a numerical rating has only been provided for one of the two main ingress types (foreign body or water), but not for the other. For example, IP5X will mean the product has been coded 5 against foreign body intrusion, but no certified level of moisture resistance is stated.

In some cases, a device may have further letters appended to provide more information related to the protection of the device:

Additional Letters

Letter	Meaning
C	Protection against access with a tool
D	Wire
F	Oil resistant
M	Device moving during water test
S	Device standing still during water test
W	Weather conditions

The letter K is a special case for powerful water jets. That is, the pressure from the jet itself could have the capacity to damage the item, as opposed to the liquid within the jet. The IP69K standard was originally developed for vehicles, especially those that need regular intensive cleaning (dump trucks, concrete mixers, etc) but it is also used in other areas, such as food processing machinery and car wash equipment.

For example, many VuePix Infiled indoor LED Screens are rated at just IP30. Protection from tools and thick wires, but no protection from water. It makes sense; why add cost to a device if it is not going to face the elements?

However, their outdoor products are rated at IP65. Dust tight and will stand up to water projected from a nozzle from any direction. Perfect!

Touring speaker manufacturers usually rate their products as IP54. Ingress of dust is not entirely prevented, but it won't enter in sufficient quantity to interfere with the operation of the box, and water splashing against the enclosure from any direction won't have a harmful effect. Makes sense.

As an aside, Apple's iPhone 11 Pro is an IP68 rated package where they claim it is dust proof and will survive a dunk in water up to four meters in depth for up to 30 minutes

Common IP Ratings

IP20	Ordinary
IP22	Drip Proof
IP23	Rain Proof
IP44	Splash Proof
IP55	Dust Proof, Jet Proof
IP64	Dust Tight, Splash Proof
IP65	Dust Tight, Jet Proof
IP67	Dust Tight, Watertight
IP68	Dust Tight, Pressure Watertight

without sustaining any damage. You could rely on that for warranty purposes.

Of course, none of this applies if the enclosure is compromised or not assembled correctly. I've seen many three-phase cables where the water proofing gland is missing from the back of the plug where the cable enters the housing. In that case, it is probably IP20! You can't get your finger in, but dust and water definitely can.

The IP Code is invaluable when specifying equipment for use outdoors. As long as it is rated properly for the conditions where it is installed, you can be confident that it will perform reliably and safely.

Harry the hirer® Productions

MELBOURNE (03) 9825 8666
81 - 95 Burnley Street, Richmond VIC 3121
SYDNEY (02) 9666 8699
Unit 12/1 Hale Street, Botany NSW 2019

LIGHTING • LED SCREENS • AUDIO • VIDEO • RIGGING • STAGING • DRAPES

harrythehirer.com.au
@harrythehirer_productions

Tips & Tricks - JBL EON ONE COMPACT Portable PA

presented by JBL

Portable and packed with features, the new JBL Eon One Compact is the perfect battery powered PA for multiple scenarios, from busking to weddings and more.

With four inputs, Bluetooth capability, and a control app, this powerful little package packs a lot of punch for a unit small enough to carry in one hand. Along with these features you get legendary JBL professional sound, which will be sure to keep your audience captivated.

Tip #1 – Linking four speakers together

The Eon One Compact App (available for both iOS and Android) is extremely powerful and increases the versatility of the Eon One Compact tenfold. Not only does the app allow you to select from a range of pre-sets (or create and save your own) it allows you to stream music via Bluetooth to up to four EON ONE Compact units. In addition to the unit being battery powered, wireless connection between four units will give you improved coverage and flexibility, whilst retaining the portable format.

Tip #2 – Power a wireless mic system via USB

A little secret about the EON ONE Compact is that not only will the two USB ports support charging of external devices, one of the USBs will power the AKG DMS100 or DMS300 wireless microphone systems. These units are available with either a hand-held mic or body pack that will cater for lapel or head-set mics making the EON ONE Compact a truly portable solution for performers, celebrants, fitness instructors and more.

Tip #3 - Control App

The control app comes with a built in Lexicon reverb, delay and chorus that can be individually applied to the three mic/line inputs. Applying the effects can give your performance more flavour while the dry/wet controls provide you with total control over the FX on each channel. Individual channels also have their own gain and four-band parametric EQ with low pass filter, giving you even more control over your performance. The app even allows you to save snapshots of the settings used so you can quickly transition between settings mid-performance with minimal menu diving and parameter tweaking.

Tip #4 - Ducking

The EON ONE Compact's one-touch ducking system will automatically lower the volume of the music whenever you use a microphone that's connected to the unit. This works well if you're a DJ or using the Compact during event announcements, but don't have a dedicated sound engineer to control the front of house music when you need to address the audience. The ducking can be activated either on the unit or via the app control.

Tip #5 - Tweaking the Channel Mixer

If the app is unavailable, each of the four input channels can be controlled via the built-in mixer. Each input has a gain, bass, mid and treble control which can be boosted or cut to control the sound, with a master volume controlling overall output. The Compact can also be placed into mixer mode where the individual channel control knobs turn into a gain control for each channel, giving the unit even more versatility in mixing.





› JOIN THE CX NETWORK

Join the biggest network of like minded people across Australia at juliusmedia.com and enter your details for FREE access to almost 3 decades of our magazines including CX, Connections and Channels Magazines going back to 1990!

› GET INTO PRINT

We are committed to print, and each month our paid subscribers get access to our glossy Magazine the old fashioned way - In the mail.

You can subscribe online at juliusmedia.com OR - fill in the form below and email to jason@vcscreative.com or mail to **VCS Creative Services Pty Ltd**, PO Box 1045, Ascot Vale, VIC, 3032.

PRINT SUBSCRIPTION ORDER FORM

Name _____
Email _____
Address 1 _____
Address 2 _____
Suburb _____
State _____
Postcode _____
Trading name _____
Phone _____

VISA ☐ MASTERCARD ☐
Card number _____
Expiry date _____
CSV _____
Name on card _____
Card holder phone number _____
Card holder address _____
Tax invoice required? YES ☐ NO ☐

PLEASE TICK ONE OPTION BELOW

Prices are in AUD.
Magazine's mailed to Australia only.

☐ 1 Year \$59 ☐ 2 years \$99 ☐ 3 years \$129

You are doing business with VCS Creative Services Pty Ltd, an Australian family owned company.

EAW RADIUS SERIES

by Richard Howey

Richard Howey is the owner and operator of Audio Dynamite Limited, a professional sound, lighting and audio visual hire company servicing the South Island of New Zealand. In addition to production, Audio Dynamite also provide sales, design and installation of pro audio visual equipment in Timaru and Canterbury.

From concert production, party sound and lighting to DJ hire, as well as high quality recording studio facilities, Audio Dynamite can cater for all your sound or audio visual requirements.

At Audio Dynamite, we were looking around for nearly four years for our next ideal PA system.

As a regional supplier in Timaru, on the South Island of New Zealand, we had some requirements that were important for our market. We wanted to expand our capability mainly in the theatre and corporate sectors as well as have the capacity to do larger gigs and develop into wider markets. We needed good sound with wide coverage in a lightweight package. This was to be our first line array purchase and the EAW Radius series is what we decided to go with, particularly as it was affordable for use in our market.

I came across the Radius system at ENTECH, where I met Tim from PAVT. Tim followed up and invited us to a system demo in a Tauranga church with six boxes and three subs a side. We could see its potential!

We subsequently purchased eighteen RSX208L powered 3-way elements (with dual 8" drivers), and six RSX218 dual 18" subs. Eighteen RSX208Ls meant we can either do two hangs of nine elements or three hangs of six elements for Left, Centre, Right on theatre

gigs.

In our local venues, we have limited opportunities to fly speakers, and where we can, the weight ratings are low. The RSX208Ls are only 18kgs each so with flyware, a hang of six is only about 140kgs. This really works for us.

A couple of our key venues are very wide, so horizontal coverage was important. The RSX208L beamwidth is 120° and we've found them to be very smooth across that range, offering less high frequency roll off at the extremes compared to other similar spec arrays.

Every box has its own digital signal processing built in, and the boxes know their tilt and configuration within the array by way of their onboard infrared transceivers and inclinometers. This makes building an array a dream when using EAW's iPad App, Mosaic.

The array processing is automatically configured to account for the quantity of boxes in the array and the speaker angles within the array that are read from the sensors. Called Optilogic, it takes the size of the array into account, the entered height as well as the required throw, and adjusts for low frequency coupling as well as high frequency shading. So in a long throw situation, the top long throw boxes in the array have more high frequency output whereas the lower short throw boxes will have less.

A lot of the technology in the Radius series has been taken from EAW's large format line arrays Anya and Anna (and Otto subs). However, Radius is not an adaptive array where all elements are hung in a vertical array like its bigger siblings. It is a traditional variable J shape system.



The Radius boxes have integrated Dante networking bi-directional inputs complete with a switched output where up to ten boxes can be daisy chained as well as an analogue failover. When we tested the failover, we could detect the changeover as it occurred because of a barely audible gap; the sort of thing we notice but the punters probably wouldn't. There was a slightly longer and staggered gap when re-establishing the Dante.

As well as the Dante ports, the RSX208L have another network port with the Dante traffic filtered out. This is where you connect a WiFi router to configure and monitor the system on an iPad using EAW's Mosaic app.

Mosaic has been designed for simple setup designs, but mainly efficient control and monitoring of the system. For prediction though, it is a bit basic unless you are in a simple venue. When I do prediction work, I use EAW's fully featured desktop software, Resolution.

The boxes do have a simple LCD screen and rotary controller for accessing the settings on the box itself, but I seldom use it, as in Mosaic you have everything you need laid out in a decent touchscreen interface. I enter a few parameters, minimum and maximum audience distances, and array height, then Mosaic initiates the optimisation sequence.

Using the integrated infrared transceivers and tilt sensors, the position and splay angle of each RSX element within the array

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.



THE SUPPORT ACT WELLBEING HELPLINE IS MADE POSSIBLE WITH THE SUPPORT OF:



The Specs

RSX208L 3-WAY SELF-POWERED LOUDSPEAKER 120° x 12°

Operating Range: 70 Hz to 18 kHz

Calculated Maximum Output Peak: 128 dB LF, MF, HF

Amplifier Power: 3x 500W

Weight: 18.4 kg

Dimensions: 24.9 cm x 68.3 cm x 33.2 cm

RSX 218 DUAL 18 INCH SELF-POWERED SUBWOOFER

Operating Range: 27 Hz to 125 Hz

Calculated Maximum Output Peak: 135 dB (whole space), 141 dB (half space)

Nominal Coverage: 360° Horizontal and Vertical

Weight: 69.4 kg

Dimensions: 79.1 cm x 52.3 cm x 111.8 cm



is automatically detected. The modules are grouped accordingly, and the system's acoustical output is optimised to compensate for array size, audience geometry and throw distance. Apparently array optimisation can be done without a network or software application using the back panel on the boxes, but I have never needed to.

One slight concern is that the menu system on the boxes don't have a lockout function. If we do a cardioid sub array using the RSX218s, the out of phase boxes are facing the punters and they can access the menu system on the box. A user interface lockout would be nice.

The system has four pre-defined voicings. We run the 'Sapphire' setting. It has a bit of top end boost, some low mid or bass lift, and that is it! Most engineers are happy with this as they were doing those settings in EQ anyway. We've found only minimal EQ is required. Sonically it is a really smooth system and I haven't noticed any issues with gain before

feedback when we have microphones out front.

An especially useful feature is the built-in output check and driver test. The system pumps white noise through every driver, one after the other. You can do a complete driver test in the whole rig really quickly.

The rigging is not the most innovative, but it is simple, easy, and light. With ground stacking we've found that we cannot always get the angles we want, and the array processing is limited to five elements in ground stack mode. Therefore, we are in the process of building some ground supported flying adaptors so we can ground stack 'fly' them, the right way up (as if they were flying). That way the rain guards work, we shift the weight back, we can have six elements, and we can achieve the splay angles that we want for our theatre gigs where we cannot fly the boxes due to poor rigging options.

The RSX218 Subs sound great. We built our

own dollies and we are probably going to put wheels on the back of them and use them with other top boxes. One slightly frustrating thing about the RSX218 subs (other than no lockout on the DSP panel) is that they are a curved front. Therefore, they don't stack that well in vehicle transit. It would be easier to put a flat cover on them if they were flat, but overall they are a great box.

We are really pleased with our Radius System. It is affordable, lightweight, easy to setup and the flexible dispersion works really well for our market. Sonically it has taken our business to the next level where we compete favourably for bigger and better gigs.

Product Info: www.eaw.com/products-series/radius-series/

Distributor, Australia and New Zealand: www.pavt.com.au/

EVENT
LIGHTING live

LM Beam Wash Spot Movers



LM6X15

LM75

LM150B

LM180

LM7X30

WWW.EVENTEC.COM.AU 02 9897 3077

EVENTEC **ENTECH**

SHURE TWINPLEX TH53

by Nat Devilliers

Nat Devilliers is a freelance audio engineer based out of Melbourne. She is currently working as FOH sound tech for musical production *Choir of Man* on their 2020 Australian tour.

Choir of Man has nine singing cast members and lots of instruments. For 80 minutes, the cast sing, play, dance and stomp their hearts out. Each of the troupe wear a TwinPlex TH53 headset mic. Most of the instruments are jack out into a pack, so they are easy. Trusty Shure UHF transmitters get everything back to the desk. The violin and trumpet are not mic-ed, so we use the performer headset mics to pick them up, which they do really nicely.

I also have some wired mics to cover the instruments and a PZM for the cajon. We

have a tapper in the show and he gets a hand soldered, y-split creation pinned to the inside of his pants. The clarinet also has a unique setup, hand-tweaked to shoot outside the instrument and not hear the keys. My predecessor Gideon Cozens is a whiz at making custom mics.

The first nine channels on my desk are the headset mics. It's important to the show that these voices come through clear on and off stage. We also have a handheld and spare if needed but so far, I've not had to use those.

Robustness

As an ongoing production, our company had seen the previous headsets not coping with the rigorous workout that the guys give the gear. *Choir of Man* is a high energy show with

lots of movement and sweat and we often perform in hot, humid tents and halls. Any electronics worn close to the body in those environments are going to suffer. Apparently, the other headsets were costing too much to maintain on the road.

I wasn't on the tour as we changed over but the TH53s have held up really well in the tough conditions that I've seen. Thus far, we haven't had any major breakages, but did manage to crack some caps last week. They still sound fine, so I've left them on, and the kit comes with plenty of spare pop filters and caps, so we should get through our run OK. I make sure that I clean them thoroughly every day with swabs and isopropyl alcohol.

Flat Response

Are you concerned about your mate's mental health?

FACT: Most Australian tech crew and roadies have attempted or considered suicide¹!

Support those around you and register for free mental health training



¹Passion, Pride, Pitfalls Dec 2014

www.entertainmentassist.org.au

Supporting the mental health of Australian entertainment industry workers

ROAD TEST

I've enjoyed discovering the different tonalities of the two interchange cap types - flat or presence - but generally like it flat. On the DiGiCo SD12 desk we are using, I leave channel EQ pretty even too. I have a High Pass at around 90Hz on all channels but the baritone. He even gets sent to the subs - he has a great dynamic. A few of the others can be honky sometimes and I have dialled that out just a little bit but most channels are pretty flat.

No Compression

I don't compress anything in our show either, except for the barman, whose dynamics are pretty wide. Otherwise, we like the natural variations to come through, to make it sound more real and alive.

The mics don't seem to colour the voices at all. Without doing a full reference test, it would also be hard to pick any inherent mic compression from these units. At the end of the day, they sound very natural, which makes my job easier.

Fitment

Different heads have different ears and these units fit most of our cast pretty well. Most require a bit of taping but some need a little more, particularly around the lobes. A bit more padding for skinny ears would help but, in general, they are great for comfort. The guys almost forget that they are there - which is perfect for a performer. Even under the extreme movement and choreography of *Choir of Man*, they stay in place.

Being able to swap the mic boom from left to right is another excellent feature. Two of our guys prefer the mic on the left and the other seven on the right. The little circular clutch dial on the side makes this really easy.

Sound to Performers

Running six sends of foldback from FoH, our show is focussed on stage sound and the guys seem pretty happy with the sound there. They can hear themselves and each other with good clarity. Currently, we have two paired sends at the front, left and right fills, one overhead centre stage send and some upstage floor monitors. I've had no feedback from the headset mics on stage or FoH with this setup. And so far, I have no complaints from the performers so I'll take that as a big win!

Support

The rest of the production team and I have found the crew at Optical Audio Productions, where we sourced the TH53s, very helpful. I'm slightly biased as I work for them sometimes but as a customer, they've been great. And Jands even helped me look for discontinued spare parts when our energetic gymnast barman had trashed a belt pack. So, the support has matched the products for robustness and reliability.

Product Info: www.shure.com/en-US/products/microphones/th53

Distributor Australia: www.jands.com.au

Distributor New Zealand: www.nsl.co.nz

Shure TwinPlex TH53 – The Specs

Microphone Capsule: Dual-Diaphragm, Prepolarized Condenser

Polar Pattern: Omnidirectional

Frequency Response: 20 Hz to 20 kHz

Sensitivity at 1 kHz: -45.0 dBV (5.62 mV)

Self-Noise, A-Weighted, Equivalent Acoustical: 24.5 dB SPL-A

Signal-To-Noise Ratio: 69.5 dB

Output Clipping Level at 1% THD, typical: 3.0 dBV, 1 kHz

Maximum SPL, 1 kHz at 1% THD, typical: 142.0 dB SPL

Dynamic Range, typical: 117.5 dB

Cable Diameter: 1.1 mm

Cable Length: 1.67 m

Microphone Length: 13.5 mm

Microphone Diameter: 5.6 mm

Net Weight with Cable: 12.0 g



FULL SERVICE TECHNICAL PRODUCTION AUDIO VISUAL RENTAL

Supplying the highest standard of
Audio, Video, and Lighting across
Australia and New Zealand.



NW GROUP

• Sydney • Brisbane • Auckland
• Melbourne • Adelaide • Wellington



www.nwgroup.com.au

Norwest

Haycom

Oceanic

Spyglass

A TRAVELER'S TALE - LE TOUR DOWNUNDER

by Duncan Fry

"... And I for one welcome our new Publishing Overlord" (apologies to newsreader Kent Brockman, The Simpsons)

The last half of January my GF and I decided to drive over to Adelaide and watch the bike race known as Le Tour Downunder. It's the first race of the UCI (Union Cycliste Internationale) season, and if you like bike racing, an opportunity to hang out with all the stars.

It's also an opportunity to catch up with the friends we met on our Tour de France holiday back in 2013, and do some riding around with them to race starts/finishes and restaurants.

Adelaide is about an eight hour drive from

Melbourne, but that's not including the hour and a half it took us to get out of Melbourne, what with umpteen road closures and endless detours and diversions for tunnel building works. Luckily we only had to do it once, but I felt sorry for all the people who are forced to do it to get to work every day!

We've done the trip a few times now, and always make sure we take some audio book CDs to listen to on the way. This time we had a new Hercule Poirot 'Country House' mystery in the style of Agatha Christie. 8 CDs, about 9 hours worth. Once we got clear of

Melbourne we popped the first one into the player, opened up the Thermos for a cup of tea, unwrapped some toast and Vegemite, and settled down to listen to the story.

After a few kilometres though, we became aware of a very bad mistake in the CD mastering. Hercule's voice was mixed down way too soft in comparison to everyone else. Every time he spoke we had to push the volume up to the max, and then push it right down again as the other characters' voices were so loud they would make a dead man's ears bleed! It makes you wonder how a mistake like this could possibly happen today, given the easy editing capabilities of even the simplest audio software.

Despite this (or maybe because of it!), listening to the story did make the time go



((bssound))

BAND PA SYSTEMS, VOCAL PA SYSTEMS, LIGHTS

Pick up and do it yourself, or Delivered, Set up and Operated by experienced Crew.

Mark Barry; (03) 9889 1999 or 0419 993 966

**www.bssound.com.au
mark@bssound.com.au**



RFID

Instead of spending hours and days, opening cases and bar code scanning, before you know what is missing

Spend minutes! - Reclaim missing assets - Save money!

Properly configured **RFID**,
the right **software**, the right **tags**, the right **team!**

RentalPoint has the expertise!

Watch our video now!

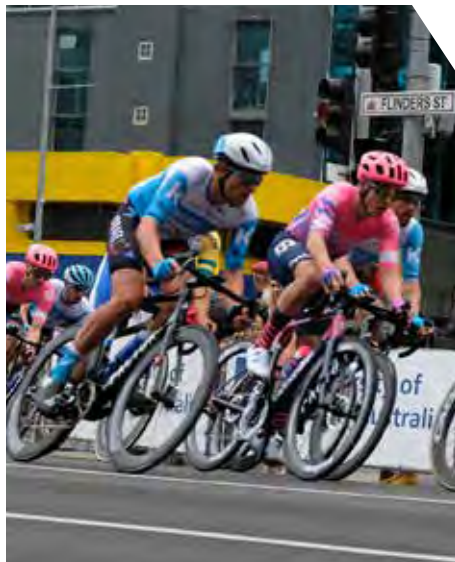
www.rentp.com/RFID | Sales@rentp.com



CX NEWS

Get the latest industry news, views, and jobs direct to your email every Wednesday.

Register at **juliusmedia.com**



quickly, and we arrived in Adelaide with only one CD to go, which we listened to later while driving down to the southern beaches.

The first time we made this trip to the race we took the SatNav with us, to help us find our hotel. As things turned out we didn't need it, since we just stopped where the big new freeway through the Adelaide Hills ends, and turned off the ignition because we were at the Chifley Hotel front door!

The next day we wandered up to the Tour village at Victoria Park, to see the teams and their star riders being introduced, then waited to see who the entertainment would be. It turned out to be Qantas' favourite 5 foot tall twin popettes 'The Veronicas'. An interesting name, meaning in the classical sense - 'she who brings victory; a true/honest image'. Perhaps that's a little obscure for their fans, and I suspect they named themselves after the Veronica Lodge cartoon character in the Archie and Jughead comics. Whatever the origin, the talented twins Jess and Lisa put on a really good show. Very modern - lots of live

video on the giant screen behind them, lots of audience interaction, jumping around, and a very tight three piece band, with a fair bit of sequenced/backing track additions helping it all along. Lots of bottom end thump, lots of screaming fans that sang along with every word - a great time was had by all. Despite being quite possibly the oldest person there, I enjoyed it too.

The next afternoon we watched a selection of short films showing on the same big screen. My favourite was from three guys who attempted to get what they nicknamed a 'Boris Bike' from the centre of London to France, ride it up Mont Ventoux 'The Giant of Provence' and then get back again, all within 24 hours. A Boris Bike is one of those rent-a-bikes brought in by Boris Johnson when he was Lord Mayor of London (Oooh - didn't he do well!). They have three gears and weigh about 36 kilos. By comparison, the racing bikes people normally try to get up Mont Ventoux with weigh about seven kilos! And have about 33 gears. Did they make it? It's on YouTube - well worth watching.

The bike racing started off with a 'round-the-houses' race on a two kilometre circuit through the city streets next to the tour village. We found ourselves some space on a corner next to a big screen, and were pleasantly surprised by the excellent sound coming from the PA. Crisp clear and warm, it was a vastly better sound than we had heard at the Tour de France, and came from some tall skinny columns that had a squeezed-up bum-cheek horn a bit over half way up the box. With great sound and great coverage, we could easily hear everything the announcers said, and that doesn't happen very often! Upon further investigation they turned out to be L-Acoustics SYVA, featured in CX mag last year at the same races.

One afternoon the weather was trying to rain, so we went out to see a movie. It was called 'Fisherman's Friends', an unlikely story about a bunch of singing Cornish fishermen who get discovered by a London music producer on holiday. A bit of drama, some love interest, it

was a feel-good movie in the 'Love Actually' style. And it turned out to be true! According to the blurb at the end, the rag-tag bunch of fishermen had the biggest selling folk music albums ever.

These days movie producers have realised that audiences know that the music doesn't just 'happen'. So when the lads are singing their hearts out on the beach, they've all got SM58s or similar on mic stands in front of them, and next to them an earnest chap pretending to move faders on a little mixer. All well and good, but as far as I could tell there were no speakers to be seen! "Arrr lads, that's enough reality for today - no-one will notice there's no speakers, will they?"

One of the race stages went through Birdwood, in the Adelaide Hills. That's where the Birdwood motor museum is, I thought to myself. An opportunity to combine two of my favourite things - bike racing and cars! So we got there early, and while we were waiting for the race to come through, we spent an hour or so looking through the cars on display. Lots of Fords, lots of Holdens, but not many Valiants, which surprised me given that Chrysler used to have a very large plant in South Australia.

We drove out to the finish of one of the third stages which featured Paracombe Hill, the like of which I had not seen before. There is no shortage of steep hills around Adelaide, but this one was a doozy! About a kilometre and a half long, and the first half is a 22% gradient. It was hard enough to try to walk up it, let alone sprint away from the bunch as Ritchie Porte did to win the stage. An amazing ride.

From my point of view, the only thing missing from this year's Tour Downunder was the Car Park Challenge, in which a steady stream of pairs of riders race each other up the ramps of a 14 storey car park! A huge amount of fun, but no sign of it this year. A pity because I had been psyching myself up for it for the last two years. Right up to the point of organising a MICA ambulance to meet me at the top!

Finding and developing
new & sustainable markets

Progressing from the virtual
to the real environment

Issues confronting women
in our industry - equality for
all, are we there yet?

What caused that breaker to trip -
managing power for new technologies

Safety practises &
technology compliance
Manufacturers, distributors &
service providers workshops

Accreditation for service providers -
a watershed initiative for review

Negotiation & the art of Communication
Machine listening - when artificial
intelligence meets audio

Skills shortage & education -
realising a comprehensive
action plan

Hiring staff - exciting or daunting?

aceta

CONVENTION 2020

Take a look
at what we've
stacked up
for you.

Also presenting

The ACETA Archive of Excellence

Honouring John Fowler (Australian Lighting Industry)
and David Bell (International Audio Industry)

For more information,
please visit aceta.org.au



BRAVE THE ELEMENTS

WITH OUR WEATHERPROOF FIXTURES



MDG

SGM®

ACME®



CHAIN-MASTER

COME AND SEE OUR EXCITING WEATHERPROOF
RANGE AT **ENTECH** ROADSHOW

1300 ULA GROUP

INFO@ULAGROUP.COM

ULAGROUP.COM