

CX

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Your huge showguide inside!

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> SCAN YOUR LAN

> IT'S NOT JUST 1^S AND 0^S
> THE RIVERSIDE STABLES

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Harman University schedule

Robe T1 launch tour
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Key Digital for JPRO

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How To
Andy Stewart
Jenny Barrett
Duncan Fry

ROAD TEST

Bose Showmatch
Powersoft T Series
QSC CP Series

ROADSKILLS

Phil Collins
The Prodigy

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The next generation of IP-addressable speakers have arrived.

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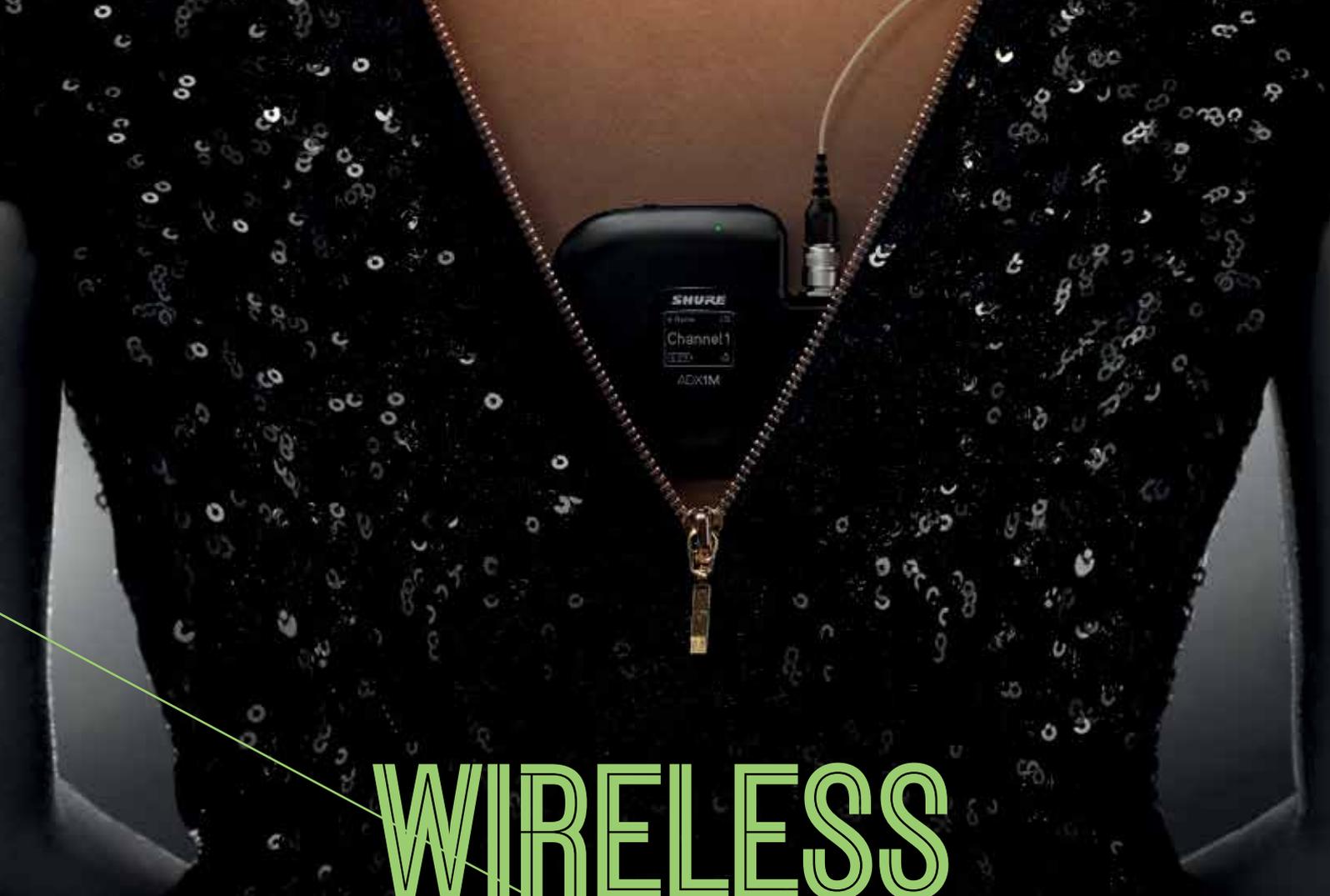
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SYDNEY
LUNA PARK
BIG TOP
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MELBOURNE
MELBOURNE
CONVENTION &
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- ▶ Mackie 4-Way Headphone Amplifier (MK-HM-4)
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- ▶ Radial Passive Direct Box for Bass and Keys (RA-SB-2)

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- ▶ Electro-Voice, the original neodymium mic company, is providing three ND vocal microphones.
- ▶ ND76 - A Dynamic Cardioid mic ideal for small to medium sized venues.
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- ▶ ND96 - A Dynamic Supercardioid with exceptionally high gain before feedback and ideal for extremely loud stages.

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2 X M1B50RGB 50W RGB LED MOVING HEAD BEAM

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INC GST

- ▶ The Event Lighting 50w RGB moving head beam has a very bright 161,000 lux @3M and outputs 1,335 lumens with a 2 degree beam angle. It features an 8 facet prism, a wide variety of 17 gobos in its fixed gobo wheel and has frost. This unit is great for production, theatres and clubs.

Proudly contributed by **Eventec**
eventec.com.au



*tool box not included



MANTRA LITE LIGHTING CONSOLE

RRP \$2,750
EX GST

- ▶ The Mantra Lite is Australia's top-selling, small lighting console for controlling conventional, LED and moving lights. It is popular with non-lighting users such as schools, churches and audio/video operators who need simple control; whilst also providing advanced control features for the experienced lighting operator. The software was recently updated to v2.0, introducing many new and advanced features whilst still offering ease of operation and an intuitive workflow.

Proudly contributed by **LSC Lighting**
lscighting.com.au



DIO (DANTE INPUT/OUTPUT)

RRP \$1,111
EX GST

- ▶ The DIO (Dante Input/Output) from tm stagetec systems is known for its quality design, functionality and reliability. This impressive device was designed in Australia as the army knife for audio; the DIO has an extensive array of tools and benefits for a huge range of audio applications. The device is a key feature in many of tm stagetec systems' fully customised PA and broadcast systems.

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RAPCOHORIZON CABLES VOUCHER

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- ▶ RapcoHorizon's Microphone cables are a premium quality line, offering a unique construction of cables and connectors for the discriminating performer. Pure copper conductors and shields coupled with top brand connectors. All cables are hand soldered and individually tested to ensure the maximum performance, frequency response, and durability. Utilizing RapcoHorizon's U.S.A. extruded wire from our wire plant ensures quality and reliability when it really matters most.

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RRP \$1,499
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PA Demo sponsored by **CMI Audio**

ENTECH 2019 EXHIBITORS



FESTIVAL FALLOUT

NSW Government's Festival Restrictions will kill many events. By Julius Grafton.

In a remarkable kneejerk reaction to six tragic drug deaths at music festivals over summer, the NSW Government has released 'Interim Guidelines' for festival approvals from March that will, according to Bluesfest promoter Peter Noble, kill festivals in NSW. "Will the last one out turn off the lights", he said, threatening to move Bluesfest after this year's event.

The NSW premier had threatened to stop a repeat of Defqon.1 by shutting down any future festival. <https://www.smh.com.au/national/nsw/two-dead-after-defqon-music-festival-overdoses-at-penrith-20180916-p50422.html>

Now the NSE Government has made good on the threat by releasing a document called 'Interim Guidelines for Music Festival Event Organisers: Music Festival Harm Reduction', which precede a new Festival Application process that starts in March.

Using these guidelines, Bluesfest (perhaps the largest festival in Australia) is not viable nor are small community-based festivals like the Illawarra Folk Festival, whose organiser said on Sydney radio this week that it would be classed as a 'high risk event' and required to have a staffed ambulance on site, at a cost of over \$500 an hour, along with a host of other medical facilities and user-pays Police presence.

The guidelines are a rushed and sloppy document, which capture any music event

with over 2000 people, indoors or out, and impose a set of regulatory oversights that carry stiff costs for compliance and for staffing.

From the introduction: "For the purposes of this document a 'music festival' is: A music-focused event, often involving performances by multiple music artists and held at an entertainment venue (indoor or outdoor) where 2,000 or more attendees enjoy a range of music for anywhere between several hours and several days." This successfully captures most concerts.

In effect, the intention of the guidelines is to prohibit many events, including community concerts such as Carols by Candlelight.

To get the 'high risk' category, CX ran the test in the document over an event such as a concert by legacy band, Earth Wind and Fire, at a 5,000 seat venue. Hardly anything to get too worked up about. Here's how the numbers worked out: the event has a score of 117. The Guidelines thus determine that this event has an extreme risk. It will now require a medical village akin to what you see at a natural disaster like an earthquake, plus a large tribe of user pays Police. Before all that happens, the Guidelines promise the promoter will supply a huge set of compliance studies and documents.

Sydney Morning Herald quotes Live Performance Australia boss Evelyn Richardson thus: "Consultation with the

Robe Demos at ENTECH Roadshow

Join Jands as they travel around Australia with the ENTECH Roadshow in March, showcasing the new ROBE T1, The ONE and only fixture you need for theatre, television and touring.

At 12 PM and 2PM during the Brisbane, Melbourne, and Perth legs of the tour, Jands staff will run through all the features of the T1, plus the new SuperSpikie, Tarrantula and MegaPointe. All demos are held in separate function rooms to the main showfloor.

www.jands.com.au/robe-t1-launch

industry has been absolutely woeful and whole sections of our industry are now being destroyed by a knee-jerk response from a government that couldn't care less."

Hosting a Facebook Group we call 'Live Venue Crisis' this week, many stories have come to light along with suggestions that perhaps this is indeed a voter winning proposition. As the NSW Government face an election in March, they have almost certainly tested their position on live festivals with polling groups.

Alongside the alarm generated by the NSW Governments 'War on Festivals' is considerable anxiety over all forms of music venues which face increasing regulatory oversight, costs, and compliance issues. Sydney's acute lack of theatre venues has also been a recent issue with the developer owner of the now closed Theatre Royal refusing to confirm if they will gut the theatre and convert it into retail space.

JPRO Appointed as Key Digital Distribution Partner for New Zealand

Leading New Zealand professional audio distribution and A/V solutions company JPRO has been appointed as distribution partner for digital video technology company Key Digital.

Key Digital provides digital signal management solutions for high-end video and control systems, including Enterprise AV over IP. The company manufactures its own lines of video switchers, extenders, cables, amplifiers, boosters, processors, scalers and interface adapters as well as the award-winning Compass Control Professional control system.

"It was essential for us to partner with a company that manufactures reliable, superior quality digital signal products where high-end video is required," states JPRO Director Bruce Gray. "Key Digital meets and exceeds this by designing and manufacturing superior quality, leading-edge solutions. We are quite excited

to partner with Key Digital and represent their outstanding line of products in the New Zealand market."

Enterprise AV over IP solutions create an expandable HDMI over IP system that can be scaled infinitely to fit any installation.

Key Digital is led by digital video pioneer Mike Tsinberg who is a true video industry expert. He led the Emmy-award winning DVD authoring team that developed the world's first Digital Video Disc (DVD). Mike is a Society of Motion Picture and Television Engineers (SMPTE) Fellow and an inventor of over forty patents. He is Chair of numerous professional committees dedicated to digital video.

As such Mike's vast knowledge of the video solutions industry and the quality and reliability of the Key Digital products were deciding factors in partnering with the company.

"Key Digital makes life easy for AV Integrators by designing and providing quality, high performance industry leading digital video solutions and Enterprise AV over IP," says JPRO Sales Director Paul Edlin. "We have confidence that this partnership will provide added value and open up new business opportunities for us and for our customers. JPRO understands the importance of education and training for integrator success and as such we will provide ongoing training including the Key Digital control solutions certification."

Key Digital is now available to purchase in New Zealand. The product has already been put to the test in the NZ market and there is demo stock available. Please contact a JPRO account manager should you wish to demo some of the equipment.



A French Touch for the Tour Down Under with L-Acoustics Syva

PA for big track sporting events like horse, car, or bike racing hasn't changed much in the past few decades – it's still very much about 100s of 100V line horns covering the big runs you need on courses that can be kilometres long. Add the complication of temporary road routes at the UCI cycling event Tour Down Under in South Australia and it's more of the same, but with demanding set-up and pack-down times.

Unless you're Adelaide's Novatech Creative Event Technology, who decided to employ 24 premium L-Acoustics Syva colinear line source loudspeakers trackside to cover the Tour Down Under 200 metres either side of each start, and 400 metres either side of each finish line. A loudspeaker more famously known for being at home on the catwalks of Paris Fashion Week and at top-end events all notably held indoors, Syva surprised and wowed the crowds and organisers with full-range, stunning quality, high SPL music and speech at all of the Tour's seven stages.

"The Tour Down Under is a globally recognised event attracting 750,000 visitors, and we wanted to improve their experience," says Ashley Gabriel, Director of Sales and Marketing at Novatech. "In pitching for the contract, we proposed to deploy L-Acoustics Syva every 30 to 50 metres on a custom-made winch-up stand, strapped to a light pole or tree, and pulled up to a height of four metres. Not only would this supply high quality, full-range audio to the crowd, we'd be able to set-up and pack-down on race day instead of running cabling and horns two weeks out, and with no ladders or working at heights for our crew."

Novatech's team contacted L-Acoustics about the practicalities of using Syva outdoors, especially considering the very real heat and dust of South Australia in January. "They were intrigued, to say the least!" reports Ashley. "Syva had been used outdoors previously, and it was possible to protect against heat, dust and rain by using a custom bracket at the top of the units that protected cabling and the inputs, while tilting them down. Overall, the longest circuit we covered was the opening 1.7 km stage around Adelaide's Rymill Park, where we used Syva on all four straights and L-Acoustics Kara as infills."

There were many advantages to using high-end, full-range PA loudspeakers with dedicated signal distribution. "Syva's 140 degree dispersion pattern means one loudspeaker can cover both sides of the street," Ashley illustrates, "and their high output meant they could throw 50 metres comfortably, and up to 75 metres if there was no wind. As each Syva is fed by its own amp channel, we could time align each output, meaning you don't get the delay you do with horns, which just added to the intelligibility and clarity. And the bottom end! You should have seen the race official's and commentator's faces

when we first turned them on!"

Novatech's crew divided into 'Start' and 'Finish' teams that set up the Syva towers and signal distribution around the sites via fibre optics over kilometres of tracks. All audio signal was carried via the open AVB standard over Ethernet network, while video was carried to Novatech's ROE LED screens at the start and finish lines over fibre via Riedel's MediorNet. The Syvas and L-Acoustics Kara podium PAs were powered by L-Acoustics LA-RAKS, which operated flawlessly in 40+ degree heat with no extra cooling.

Meanwhile, back at the Tour Down Under Village in Adelaide's Victoria Square, Novatech built a custom 18 metres wide by 8 metres high scaffold structure for team presentations and events, vinyl wrapped with signage, paired with a 30 metre ROE Visual LED screen and L-Acoustics K2 line array. After 1980s corporate pastiche pop stars Client Liaison rocked opening night, the live site stayed active for the 10 days of The Tour, running, interviews, highlights, competitions, and fan entertainment.

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Astera LED Announces ULA Group as Exclusive Australian and New Zealand Distributor

Leading battery powered wireless LED manufacturer Astera LED has announced the ULA Group to be its exclusive Australian and New Zealand distributor.

Says Astera’s sales and marketing director, Sebastian Bückle, “I see huge potential in the Australian and New Zealand markets, which are highly developed, innovative in approach and growing fast, so we sought a partner that is progressive in thinking and approach with a great reputation for quality and well connected with a diverse and interesting client base. ULA Group ticked all the boxes! They have a huge energy and are highly motivated to push Astera products to the top across multiple markets”.

Established in 1992, the ULA Group is one of Australia and New Zealand’s best known and well-established professional lighting and visual solution providers. Always proactive and enjoying strong relationships with a number of premium brands, MD Cuono (Con) Biviano and his team are fully committed to providing inventive lighting technology and visual solutions to all professional and commercial sectors including iconic structures and buildings, all types of entertainment venues and a wide variety of shows and events.

Con commented: “Astera is more than just a well designed and engineered LED product; a minutiae of details have been thought-through, making this a truly ground-breaking range. The ingenuity of the Astera product range is perfectly suited to ULA’s portfolio

and vast client base, from rental houses to film studios, through to the design and specification market”.

Con highlights the “small but carefully crafted” Astera collection which includes key products like the TitanTubes, AX5 TriplePARs and the tiny AX3 LightDrops – one of the world’s smallest compact wireless event spotlights. “The range covers most needs in the world of battery-operated lighting, with the added benefit of crossing over into wired fixture markets. The superb colour mixing, multiple control options, dynamic mounting, quick releases... that, coupled with the sheer quality of the light output which is calculated to maintain continuity over time, is very impressive”.

Astera products have been designed to appeal to designers and practitioners working across all professional lighting sectors. Entertainment and live events is already a major success for the brand as well as film and television, especially the pixel-controllable, flicker-adjustable TitanTube.

Con foresees theatre shows as one of the potential growth areas where the products can be used for quick-deploy sidelights and boom fixtures or even footlights in conjunction with the clamp and holders. “Basically, they will be great for all those places where a little boost of light is required in very limited available space”.

He also mentions the functionality and user-friendliness of the Astera control App which includes neat features like time scheduling



which is great for maximising workflow. “A technician can rig lights in several rooms and spaces quickly, set up the scheduling and move on to the next task. We also see potential in fashion shows, for location photos shots, for makeup lights as well as for site practicals”.

With the event industry getting increasingly carbon conscious, LED illumination and battery powered units can greatly assist, and another important aspect here for customers is the cost-efficiency. Maintenance cost is low, no lamp replacements are needed and the Astera fixtures are also IP65 rated and robustly constructed to last. Astera, having pushed the envelope in terms of what is possible with wireless technology and battery power, is also a perfect match for the ULA Group which likes to be at the forefront of technology.

Con concludes, “The structure and professionalism that Astera has brought to the table, along with the passion and dedication to producing great products makes us really excited to be working with Sebastian and the team. We can’t wait to get the products and the brand out there”.

Harman Training 2019 by avt

avt are running Harman University training courses throughout 2019 at their offices – locations here: <https://avt.tech/contact/>.

Enrolment enquires can be directed to training@avt.tech or (07) 5531 3103, and courses are open to all AV installers, designers, and consultants looking to expand their skill sets.

More info on Harman University course content can be found here:

pro.harman.com/training



Dates	Venue	Course Name	Duration
26-27 Feb 2019	Sydney	AD232: Audio Designer Audio System Design for AV Professionals	.5 days
27-28 Feb 2019	Sydney	AP232: Audio Programming with BSS Soundweb London	1.5 days
6 Mar 2019	Melbourne	ND232B: SVSi Designer Networked AV Design for AV Professionals	1 day
7 Mar 2019	Melbourne	NT232B: SVSi Technician Networked AV Commissioning for AV Professionals	1 day
12-13 Mar 2019	Gold Coast	AD232: Audio Designer Audio System Design for AV Professionals	1.5 days
13-14 Mar 2019	Gold Coast	AP232: Audio Programming with BSS Soundweb London	1.5 days
20 Mar 2019	Sydney	ND232B: SVSi Designer Networked AV Design for AV Professionals	1 day
21 Mar 2019	Sydney	NT232B: SVSi Technician Networked AV Commissioning for AV Professionals	1 day
26-27 Mar 2019	Melbourne	AD232: Audio Designer Audio System Design for AV Professionals	1.5 days
27-28 Mar 2019	Melbourne	AP232: Audio Programming with BSS Soundweb London	1.5 days
10 Apr 2019	Auckland	ND232B: SVSi Designer Networked AV Design for AV Professionals	1 day
11 Apr 2019	Auckland	NT232B: SVSi Technician Networked AV Commissioning for AV Professionals	1 day
1-3 May 2019	Melbourne	CT232: AMX Installer Control System Commissioning for AV Professionals	3 days
15 May 2019	Gold Coast	ND232B: SVSi Designer Networked AV Design for AV Professionals	1 day
16 May 2019	Gold Coast	NT232B: SVSi Technician Networked AV Commissioning for AV Professionals	1 day
5-7 Jun 2019	Gold Coast	CT232: AMX Installer Control System Commissioning for AV Professionals	3 days

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Bose DesignMax

DesignMax loudspeakers are a wide range of loudspeakers which offer the flexibility to deliver outstanding audio and aesthetics for any commercial space. DesignMax loudspeakers range from 2-inch low-profile models to 8-inch high-SPL compression-driver loudspeakers. Enabling Bose EQ voicings on select Bose digital sound processors and smart amplifiers provides even better sound. SmartBass processing can also be enabled to deliver enhanced sound at any listening level. On select models, the Dispersion Alignment system provides wide and consistent off-axis response.



Bose CSP

Bose Professional CSP-1248 and CSP-428 commercial sound processors are part of a comprehensive platform that includes loudspeakers, controls, and software that help installers deliver premium sound systems efficiently – without extensive DSP training. These debut models in the new Bose commercial sound processor product line are designed to serve as standalone DSPs in applications such as retail stores and restaurants, or any public place where modest processing and high-quality sound are desired. An onboard CSP configuration utility and intuitive browser-based UI provide a quick-setup workflow. All levels, routing, thresholds, and priorities are displayed in real-time, eliminating guesswork and common tasks are presented in a logical manner, so that systems can be configured faster, reducing installation time while increasing setup accuracy.

Bose PowerSpace

PowerSpace amplifiers are a new line of five cost-effective power amplifiers offering the right power levels and DSP options for premium commercial applications. Ideal for zone-expansion applications, the P21000A, P2600A, and P4300A models (2 x 1000, 2 x 604, and 2 x 300 watts respectively) enhance any commercial installation with clean, reliable power and digital connectivity. A Bose AmpLink input allows for multiple channels of uncompressed, low-latency digital audio from Bose digital sound processors via a single Cat 5 cable. Versatile outputs give you the flexibility to deliver full channel power to either low- or high-impedance loads – without bridging – and even send double power to a single zone.



Australia and New Zealand: Bose
pro.bose.com or +61 (0)2 8737 9999

Prolights STARKBAR 1000

STARKBAR is a powerful and zoomable LED batten able to be used as a light curtain, CYC light or wash light. Each of the 40W Osram Ostar RGBW LED pixels are individually controllable and completely consistent with the rest of the STARK family. Features include 18 x 40W RGBW LEDs, 3° to 45° zoom range, motorised tilt movement and individual pixel control with an on-board generator for precise and fast effects creation.

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NEW

KRK ROKIT Generation 4

ROKIT G4 monitors include advanced drivers made with Kevlar, efficient Class D power amplifiers and front-firing port to extend accurate and tight bass reproduction. ROKIT G4s also include onboard room tuning, with 25 visual room-correction EQ combinations, the only monitor in its class with an LCD to visualize EQ settings. Also, users will be able to use the KRK App to simply and intuitively set up their rooms for better mixing with a real-time Room Acoustic Analyzer to aid with angle matching, placement, and level matching of each speaker in a pair.



Australia: Jands jands.com.au or (02) 9582 0909

New Zealand: Music Link musiclinknz.co.nz or (09) 259 0068

Neumann NDH 20

The Neumann NDH 20 is a closed-back studio headphone combining excellent isolation with the carefully balanced sound image and outstanding resolution you would expect from a Neumann product. The NDH 20's newly designed 38-mm drivers with high-gauss neodymium magnets ensure high sensitivity and low distortion. The headband is made of flexible spring steel while the ear cup covers are machined from lightweight aluminum. Large and soft memory foam ear pads make the NDH 20 a pleasure to wear for long periods without fatigue. For easy transportation, the NDH 20 is foldable.



Australia: Sennheiser
en-au.sennheiser.com or 1800 648 628

New Zealand: Sennheiser
en-nz.sennheiser.com or (09) 580 0489

Elation Artiste Monet

The Artiste Monet is a fully featured LED Profile fixture offering outstanding projection quality and a wide colour mixing gamut through its variable SpectraColor engine. Providing up to 45,000 lumens from its 950W 6,000K LED engine, the Monet is the ideal fixture for any application requiring superior output, bright and powerful beams, quiet operation, and precise gobos and colours. Monet integrates Elation's new SpectraColor system which offers traditional CMY mixing but adds a variable RGB colour mix for saturated primaries. The wide colour gamut of the Artiste Monet is achieved by seven colour mixing flags with 16bit precision, while the fixed colour wheel offers UV and High CRI options.

Australia: Lexair lexair.com.au or 0477 539 222

New Zealand: Lexair lexair.nz or (09) 213 7436



Eurotruss Modular H-Frame

Eurotruss Modular H-Frame offers a flexible and complete modular solution for suspended lights. The new system enables an 'endless' configuration of single and double suspensions as well as ladder systems for various lights – both suspended and upright mounted. For ladder configurations, up to ten combinations can be mounted one below the other, without further rigging actions. The suspension can be achieved by the supplied ring eyes or with swivel couplers.

Australia:
Showtools International
showtools.com.au
or (02) 9824 2382

New Zealand:
M.D.R Sound & Lighting
mdrlighting.co.nz
or (06) 355 5073



High End Systems SolaFrame 1000

SolaFrame 1000 is the new go-to workhorse automated framing fixture for lighting designers. With 20,000 lumen output, full framing shutters, rotating and fixed gobo wheels, multiple colour systems, 12°-40° zoom, animation effects plus all the bells and whistles required by the modern LD, the SolaFrame 1000 is available in Ultra-Bright and High CRI versions. SolaFrame 1000 ships with a TM30 Filter that boosts the Ultra-Bright engine to 85+ CRI. Other features include Iris and Light Frost, Rotating Prism and High End Systems' patented Lens Defogger System.

Australia: Lexair
lexair.com.au or 0477 539 222

New Zealand: Lexair
lexair.nz or (09) 213 7436



Riedel RUN-E1L/R

Optimised for use with Riedel's Bolero wireless intercom system, the RUN-E1L/R (XLR4F) is an ultra-lightweight one-ear headset for demanding, high-noise environments like sports, security, or events where maximum voice intelligibility paired with a secure fit is key. Other features include a fully adjustable mic boom and the ability to be used with custom earmolds for a perfect individual fit.

Australia and New Zealand: Riedel Australia riedel.net or +61 (0) 2 9669 1199

GEAR

Chauvet DJ EZLink Par Q4BT

This 100% wireless quad-colour (RGBA) LED Par fixture is battery-powered (built-in rechargeable battery with up to 20hrs operation, 8hrs with max output) and has Bluetooth wireless technology built in, allowing you to control EZLink Par Q4 BT with the free BTair app (patent pending) from any smartphone or tablet. Genuine amber LEDs included with quad-colour lights like EZLink Par Q4 BT provide warm colour mixing or natural-looking colour temperatures.



Chauvet DJ EZLink Strip Q6BT

The EZLink Strip Q6BT is a wireless battery-operated linear wash light that can be controlled from any smartphone or tablet using the free BTair app (patent pending). On-board are six quad-color (RGBA) LEDs with three zones of control to create automated effects. Punchy amber LEDs allow for natural-looking colour temperatures and warm colour-mixing. Easily set static colours or automated programs with the optional IRC-6 remote, or generate eye-catching effects with sound-activated and automated programs.

Australia: AVE avec corp.com.au or (03) 9706 5325

New Zealand: M.D.R Sound & Lighting mdrlighting.co.nz or (06) 355 5073



NEW GEAR

Tascam DR-X Series

TASCAM has introduced the next generation of their professional grade handheld recorders, the DR-X Series. The DR-40X's integrated unidirectional stereo mics with scalable A/B or X/Y configuration, 1/8-inch stereo and dual XLR/1/4-inch combo inputs, built-in phantom power for condenser mics, integrated 4-track capability, and wired remote control option make it an essential tool for DSLR video, music recording, sound design, and more. The powerful yet affordable DR-07X has dual integrated scalable unidirectional A/B or X/Y configurable mics. Incorporating all of the DR-07X's features minus the scalable microphones, the DR-05X is equipped with a pair of omnidirectional condenser mics, making it the ideal tool for recording music, meetings, dictation, and more.

Australia: CMI Audio
cmi.com.au or (03) 9315 2244

New Zealand: Direct Imports
directimports.co.nz or (06) 873 0129

Barco G60

The G60 series expands the single-chip offering with three projectors between 7 and 10K. The laser light source ensures great image quality and lower maintenance compared to most lamp-based projectors on the market. Thanks to Barco's Projector Toolset software, installing and managing your projector(s) can be done from the comfort of your own desktop computer. The projectors are available in black and white, allowing you to choose the perfect fit for your specific environment. Its compatibility with other Barco products and the wide lens shift range enlarge the projectors flexibility.

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



AKG DMS100

AKG DMS100 professional digital wireless systems for performers and presenters combine signature AKG sound quality and license free 2.4GHz operation with AES 256-bit encryption, extended battery life, and ease-of-use. The DMS100 is available in two options: with a high-quality, AKG handheld microphone or with a bodypack. The bodypack is instrument-ready and can also be combined with a wide range of AKG headsets or clip on mics (available separately) for singers or presenters.

Australia – CMI Audio
cmi.com.au or (03) 9315 2244

New Zealand – JPRO
jpro.co.nz or (09) 275 8710



EV RE3

RE3 is EV's new UHF wireless microphone system designed to deliver superior audio performance with best-in-class wireless flexibility and ease of use. Five handheld transmitter systems and one bodypack system with several capsule options for instrument and lavalier/headworn microphone applications are available. The RE3 uses 36MHz tuning bandwidths (most bands) with 1440 selectable frequencies, and eight groups with up to 22 frequency coordinated channels in a group. The handheld transmitters are fitted with Electro-Voice ND (76, 86, 96) premium dynamic and RE (420, 520) premium condenser capsules, and mic capsules can be purchased separately and fit a number of industry standard wireless systems.

Australia:
boschcommunications.com.au
 or 1300 026 724

New Zealand: Musicworks
musicworks.co.nz
 or 0800 687 429



ISE 2019: CHOOSE YOUR OWN ADVENTURE

by Jason Allan

Amsterdam's ISE is a huge, unwieldy beast of a show. Cramming it into 15 halls in the RAI Exhibition and Convention Centre is quite a feat, especially when you consider that it only has 11 halls to begin with. Jason Allen got lost in the labyrinth and reported back on what he found...

Attending ISE is like playing D&D. You stand in the corridor with two choices – turn left into one hall, or right into another. You roll the dice; left it is. Oh no! You've stumbled into the lair of 'software-as-a-service', where the matching suited minions of millennially-named companies like Zoosh! and Collab-ify! accost you with pamphlets touting their cloud based vapourware. Had you turned right, you would have walked into the 'Hall of Exactly What I Was Looking For', boasting total interoperability over off-the-shelf Ethernet, and good coffee.

ISE is the first tradeshow that I have attended that is impossible for one person to see or cover in its entirety. It attempts to be all things to all technicians – smart buildings, control, evac, video, LED, sound, networks, collaboration software – you name it, it's here. There was even an entire hall devoted to drones, which I didn't even enter. And that's the thing – you can't see it all, so don't even try. Make a list of everything important to you and concentrate on that. And try not to get lost. There's a decent sized lake at the rear of the RAI; I didn't even find it until my last day.

With well over 1,300 exhibitors and more than 80,000 attendees shoehorned into a space never designed to cope with those numbers, the RAI built the world's best marquee to cover the fact they'd sold 103% of the space available. A rumoured 183 exhibitors were turned away. When the show finally relocates to the much more commodious Fira de Barcelona in 2021, it will be even broader in scope, with a number of lighting companies joining the few who have already crept in.

I'm not sure such an unfocussed show is a good thing for visitors or exhibitors. Sure, there's a great vibe, and exhibitors get the warm fuzzies at the sheer volume of foot traffic, which got so dense on the second day it made walking the halls difficult. But the question they should ask themselves is; how many of these people are really there to see their thing? With the tech covering such broad areas, no one human mind can encompass them all. But everyone's there, including an impressive number of Antipodeans, which bodes ill for PL+S in a couple of years.

First – The Controversy

In the only bit of serious controversy to be had on the show floor, ClearOne announced that their ongoing legal stoush with Shure over the validity of their patent on 'beamforming microphone arrays' had been settled after the Patent Trial and Appeal Board ruled against Shure's appeal to an earlier decision. This puts Shure's MXA 910 ceiling array microphone, a major product for the company, in an unknown position, but likely to continue in production with some sort of financial agreement to be made with ClearOne. A similar product from Sennheiser seems unaffected, though this is most likely because they've already set up an agreement.

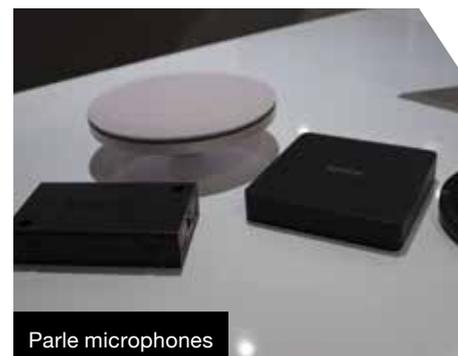


PAVT's David Di Muzio with the ClearOne BMA CT

With the legals out of the way, ClearOne announced their own product in the space, the BMA CT, which includes built-in acoustic echo cancellation, noise cancellation, and beam selection, as well as a 2x10W into 8-ohm power amplifier. Rumour has it that many other companies were delaying releasing products into this space pending this decision, so it will be interesting to see what does (or doesn't) get released in the aftermath.

On with The Show

Biamp

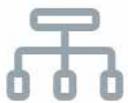


Parle microphones

Biamp have decided that they want your entire signal chain, and showcased products that take you all the way from input to output. Their Parle microphones are beamtracking (hmmm, see above) and come in table or ceiling mount models. They're compact, quite beautiful, and use four 90-degree tracking zones delivering 360-degree room coverage, using just one channel of acoustic echo cancellation. They boast that they need zero setup by the integrator, a claim Biamp are making across a lot of their new product range.

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Set up a professional AV network without IT knowledge. Our data distribution equipment is used for pro lighting, audio and video solutions in the entertainment industry, installation market and architecture business.



Converged AV networking

Converged networking is much more cost-effective and time-saving. Luminex switches are validated against many protocols and you can easily set-up a combined network for your lighting, audio and video applications, without any worries or compromises.



Ultimate redundancy

With Luminex switches and the RLinkX protocol you don't have to worry about losing signal during a big show. Whenever a link fails or breaks, the redundant link automatically takes over the signal in just milliseconds. Also on power and temperature level our switches offer redundancy.



Remote Device Management

Climbing the truss to change a simple device setting or patch lighting fixtures is a thing of the past. All our converters and splitters are RDM enabled so you can quickly setup and manage all your end-devices from one central platform: your favourite RDM controller.



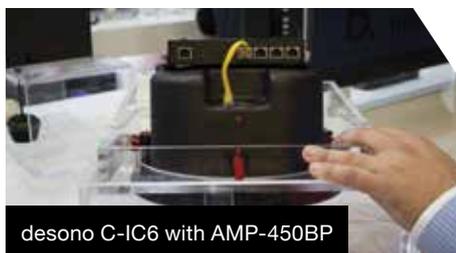
Robust touring equipment

Taking equipment on a tour, renting it to customers or using it for live events makes it really vulnerable for damage. That can lead to catastrophic situations. But not with Luminex. Our devices have an extra robust housing and ruggedized Ethercon or Fiber-Optic connectors.



Biamp's Joshua Beltran with the Tesira 1200

Biamp's Tesira 1200 amps feature totally asymmetric power distribution, meaning you can define the power per output channel as you see fit across their range – one channel 10 watts, another 100 watts, and so on up until you get to the limit of the Tesira 1200.1's 4-channel, 1200W or the Tesira 1200.2's 4-channel, 2400W.



desono C-IC6 with AMP-450BP

Biamp's desono C-IC6 ceiling speakers can be deployed with the optional PoE+ AMP-450BP backpack amplifier, that mounts cleanly onto the back of the speaker, eliminating the need for multiple cable runs back to the rack. Each backpack amp powers up to seven additional desono speakers via Cat cable, creating a 100 percent termination-free installation, enabling a structured cabling crew to complete the entire above-ceiling audio rough-in for a conference room.

An innovative product that really got my attention was Crowd Mics. This system allows up to 1,000 WiFi connected devices (smartphones and tablets) to use their microphones via a free app to interact with a live event. Interfacing through a hardware unit called the ATOM, which connects to the audio system via balanced analogue or USB, the moderated system effectively turns everyone's iPhone into a push-to-talk comms device. With latency of somewhere between 40 and 50 milliseconds, I'm curious to see it in action, and can't think of an easier way to mic up several hundred people for Q&A at a corporate function.

Bose

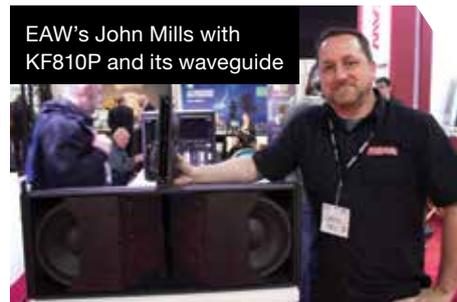


Bose launches ArenaMatch

Bose had a huge presence at the show, and ran the slickest press presentation I've ever attended at the neighbouring Novotel. They took an interesting tack – their introductory video explained they felt they'd been guilty of not being collaborative enough with their commercial customers, and vowed to make them part of every product development process from now on. They then went on to run audio demonstrations of their new business music systems, DesignMax loudspeakers, commercial sound processors and controls, and the big surprise, their new ArenaMatch DeltaQ array loudspeakers and ArenaMatch Utility loudspeakers for outdoor installations.

Like their previous RoomMatch and ShowMatch array systems, you can swap waveguides for multiple horizontal and vertical coverage angles. Each box houses a 14-inch neodymium woofer and six Bose EMB2S titanium-diaphragm neodymium compression drivers. Weather-resistant features include a three-layer stainless steel grille, water-resistant woofer cone coating, industrial polyurethane exterior coating, and a molded input cover.

EAW



EAW's John Mills with KF810P and its waveguide

The first new product since EAW's acquisition by RCF Group, the KF810P installation line array, was front and centre at EAW. It's available in black or white, and wiring can be concealed, as can the rigging. A weather rated option allows for long term permanent installation in demanding environments backed by EAW's full warranty. Each element is comprised of dual 3" compression drivers fed through an all-new waveguide, four 5" mid-frequency transducers and two 3" voice coil high power 10" LF drivers, delivering up to 145dB with accurate pattern control to 250Hz. A touring version is set to follow.

AoIP – Resistance is Irrelevant

Some interesting AoIP developments around the aisles:



Dante for DLive



Allen & Heath DT168

Allen & Heath released a suite of Dante products – a 64x64 and a 128x128 card for dLive, the DT168 16 in 8 out stage box and the DT164-W 16 in 4 out wall-mount unit for installations.



Ghost Networking

Ghost Network were showing their FAST series ruggedised Ethernet switches for production, which of course can carry control protocols for lighting like Art-Net as well as AoIP. They're basically HP switches with EtherCON added, but their software interface is slick and intuitive. Interestingly, they were boasting AVB capabilities, but aren't Avnu Certified, which says a lot about customer interest in AVB right now and that's a good thing for Milan adoption.



Tascam MM

Tascam have entered some interesting territory with their MM series of Dante I/O. Small, silver, 1/2 rack size and beautifully finished, they're available as four analogue out, four analogue in, or two in/two out, all carrying four channels of Dante. Their unique proposition is that there's DSP built in to each unit that can mix, EQ, process dynamics, automate level control, duck, route and reduce noise, making them capable of being the heart of small standalone or breakout systems.

dLIVE



Design for Live

The phenomenally powerful XCVI Core puts dLive at the heart of tomorrow's sophisticated live audio systems, while its class-leading user interface keeps the engineer focused on mixing in the moment.



Introducing two new dLive 'super' Dante cards and two Dante I/O expanders to enhance your dLive and SQ systems – the portable DT168 and wall mounted DT164-W.



DT168



DT164-W



Dante 64 x 64



Dante 128 x 128

ALLEN & HEATH

WWW.ALLEN-HEATH.COM/DLIVE

tag | Technical Audio Group



Kevic

Dante has now hit the point where there are so many licensees not even Audinate really know who all of them are. One in particular jumped out at me – Korean brand Kevic. Pardon my ignorance, but I am totally unfamiliar with them. They had an entire stand of what looked like incredibly useful, industrial grade I/O boxes, paging, and DSP, all Dante enabled. Maybe if the first sentence on their website wasn't "The 21st century is the time of leap when has been rapidly changing covering various fields of industry with digital technology," more of us would know who they are.

L-Acoustics



L-Acoustics

Sometimes it's the little things – L-Acoustics X4i is a 10cm deep coaxial 4" producing 116dB peak

Pliant



Pliant's Gary Rosen

Pliant's Gary Rosen took the time to give me the guided tour of exactly how their 2.4 GHz networked based comms system works around the common three WiFi channels. It's quite ingenious, and involves repeating signals and longer-than-usual (in time, that is) square waves. With a 900 mHz product also available in Australia, Pliant are worth a serious look if you're in the market for robust wireless comms with no need for a matrix.

Powersoft

Definitely the most left-of-centre product and product demo I encountered at the show.



Powersoft Movers

Apart from making excellent power amps and DSP, Powersoft are also known for OEMing transducers. Normally, transducers translate sound into movement that's audible. In the case of the Powersoft Mover, they're going for movement you feel. I stood on a floating platform with at least four of these things underneath it and put on a VR headset that ran a short animated video of a ball rolling down a jagged icefield, with accompanying sound effects and coordinated movement of the platform below me courtesy the Movers. Now, I'm not as light as I used to be, and I was thrown around like a sock in a wind tunnel. I almost fell over several times. Embarrassing photos exist of these moments – see David Di Muzio at PAVT if you'd like a laugh at my expense. The target market for these little firecrackers is amusement parks, but I can see them going into high-end home theatre too.

Riedel



Bolero Standalone software interface.

Following the success of their Bolero wireless comms, Riedel have released the standalone version for customers who want a small wireless comms network without the need for a matrix. It's a license-based product, and can support 10 beltpacks per antenna and up to 100 antennas in a single deployment.

avt – The Forward Thinking Integrator's View

avt were not only kind (and brave) enough to host a sizeable group of Aussies and Kiwis at a function with an open bar on the first evening of ISE, but also to take me on a personal tour of offerings from a number of its brands at the show. It provided a keen insight into how the industry's hot tech trends are all combining to create completely new AV capabilities and products.



AMX Modero G5 with Zoom integration

Every control vendor at ISE was touting native integration with one of the big conferencing soft codecs; Zoom, Google Hangouts, Skype for Business. The enormous Harman stable had everything that opens and shuts on their imposing stand, but their elegant AMX Modero touch panels stood out with their native Zoom integration – all controls are exactly the same as the Zoom interface on PC that customers are used to. This is just part of the puzzle that is the fabled 'UX' that all vendors are talking about



Utelogy's co-founder and CTO, Scott McGarrigle

Software based IP control is the sleeping giant of the AV industry. It's the obvious way forward, but few companies want to talk about it. Not so avt with Utelogy, pushing ahead with what is emerging as the front runner in the field. Co-founder and CTO Scott McGarrigle explained most of the recent upgrades and expansions to the platform are all centred around data and analytics – who's using what, when, where, how and why, and then making all of this easily interpretable and presentable within an organisation. There's more than 80 metrics Utelogy can capture, with more on the way.



The new PanaCast 3 camera

The new PanaCast 3 camera has upgraded to three 13 megapixel cameras outputting a 180 degree panoramic view at 4K. It can be powered over USB-C, and has a sleek new industrial design. All the smarts are in the adaptive capture and stitching, which happen in the device with no additional software. Plug and play with your favourite conferencing tool.



Tripleplay

Tripleplay, which on the surface appear to be a digital signage service but are much more, have added Google Chromecast support for interactive IPTV, plus multicast stream support that can send four outs to a single player.

‘A’ ADDS ‘V’ AT ISE

What better place than at the world’s largest AV show for ‘A’ to finally find its ‘V’? The first day of the Amsterdam mega tech-fest saw two titans of the AoIP world, Audinate and QSC, officially launch products that add video-over-IP to their market leading networked solutions.



Dante AV

Audinate kicked off with Dante AV – a new OEM board and product development suite that lets manufacturers easily add video transport to their audio solutions, or vice versa. End-users and system admins already familiar with Dante will be completely at home with the way Dante AV handles video signal in Dante Controller – it’s all exactly the same matrix patching we all know, just with video channels labelled as such. The Dante AV board carries one video signal and eight channels of audio, allowing for all sorts of embedding and de-embedding flexibility.

Audinate’s Vice President of Marketing and Product Management Josh Rush explained that customers have been asking for video to be added to the Dante suite for years, and the company even demonstrated its capability to do this at least seven years ago. Without naming names, he assured us that we can expect a raft of new Dante AV product

announcements from prominent audio and video manufacturers by the end of 2019.

“There’s a few reasons it’s taken us this long to bring a video product to market,” explained Josh. “The first is general network infrastructure; we wanted to make sure it works on real-world network implementations. Network adoption, bandwidth, and speed have had to grow to the point where they realistically support high quality video. The proliferation of 1 gigabit infrastructure means that’s now happened.”

“The second factor has been making sure we make the right play in this market space,” Josh continued. “The interoperability that Dante is known for needs to be the same for video. We didn’t want to bring another



Josh Rush

codec to a fragmented market. We needed to build something that works in existing video ecosystems. So the Dante AV module is intended for companies that already have existing networked video products so they can add Dante transport, control, PandP and discovery.”

Meanwhile, QSC’s Q-SYS DSP, control, and hardware platform fulfilled the vision of its creator Rich Zwiebel by adding the first of its video endpoints, the NV-32-H. With three HDMI in, two HDMI out and eight channels of audio in and out, the unit is software defined as an encoder or decoder within Q-SYS. In the already feature and option-rich Q-SYS environment, which just added Zoom integration directly from its touch panels without needing an external PC, video endpoints represent the last piece of the puzzle for QSC’s total domination of networked AV.



Caitlyn Sullivan

Caitlyn Sullivan is a Special Projects Engineer for QSC’s Q-SYS. She has written plug-ins for a huge variety of third-party devices for the Q-SYS platform, including the Atlona plug-in pictured.

Common to both Dante AV and the NV-32-H is the no-nonsense network and resolution specs; they both run on standard 1 gigabit networks and support 4K60 4:4:4. Staff at both stands emphasised they felt no need to force users onto 10 gigabit backbones, and no-one mentioned 8K, HDR, or any other ultra-hi-res formats. Both are going for simple boxes that allow those familiar with audio networking to feel completely at home.

MILAN - AVB LIVES!

Mea Culpa – it seems appropriate I apologise in Latin.

I have been cynical about AVB several times in print, and am happy to finally see what I thought what would never happen – a whole raft of new products, a robust and functional development alliance, and a software tool to unite it all.

Adamson kicked off before ISE with a major product announcement – its CS7p, the world's first Milan-ready loudspeaker with redundancy. With 2400W, 80Hz to 18kHz response, dual 7”s and a 1.4” compression driver, it's a workhorse that is equally at home in installs or production. It represents what is sure to be the first of many loudspeakers for the Milan environment. It was among many AVB/Milan products that were finally demonstrated working together at the show.

Over at the Luminex stand, a live demo with one of their switches at its heart saw an Adamson CS7p, Meyer Sound Galaxy,



Luminex Milan

L-Acoustics LA4X amp and P1 processor, and an AudioScience Hono AVB mini I/O device all playing nicely, patched and monitored by what I've always seen as the final piece of the puzzle – Hive, an open source AVB patching, monitoring and configuration tool. Originally created by Avnu Alliance contributors for development purposes, it's now available for download from Github.

Over at d&b audiotechnik, they too have jumped on board the Milan train, with their DS20 Audio network bridge, which provides an interface between d&b amplifiers and Milan. It incorporates 16 AES3 digital output channels, 4 AES3 digital input channels, and an integrated fully AVB-enabled 5-port network switch.

A stat that everyone with a Milan product on their stand kept quoting was its network latency – 53 nanoseconds. That's right – nano. not micro, or milli. In audio, that's no latency. The network is no longer a consideration, just how fast you can do an AD/DA conversion.

Milan finally adds all the pesky interoperability controls to AVB – important stuff like how to control gain, phase, delay, and all of the other parameters that AVB always had the capability to handle, but needed to get everyone together in a room to agree on how. And inspiringly, I actually saw it happening. In a conference room next to major Milan contributor Meyer Sound's Hilton demo room, the Avnu Alliance Milan Working Group were doing just that – working.

The main driver of all of this development, which is costing R&D time and money for the participants, is spatial audio. The big four PA companies involved, d&b, L-Acoustics, Meyer Sound, and Adamson, all realise that they need a lot of channels of time-sensitive processing and distribution for spatial, and Milan represents the best way to get it without being beholden technologically or financially to Audinate. The knock-on benefits of these heavyweights getting motivated to define interoperability over AVB should have serious market benefits across all networked audio and video products.


Electro-Voice

DYNACORD

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ROADSHOW

ZLX-BT The best-selling portable powered speakers are now streaming with Bluetooth NEW

Evolve 50 Hear it to believe it. Hear it on our stand and in the CX Column Speaker Demo HOT

EVC Prosound Install Speakers Great performance & value for churches, schools, clubs... NEW

ETX Loudspeakers Hear the power and sound quality in the CX PA Demo TOUR DE FORCE

TGX, IPX, L & C series DSP Amplifiers The new standards in amplifier engineering NEW

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MEYER SOUND

Spatial for The People of the Galaxy



Dennie Miller in the mix



Lee Ellison explains Spacemap's history



Spacemap Live matrix output view



Chris D'bais with the ULTRA-X40



The Spacemap Live interface on three iPads

Whisked away in unmarked black vans like we were being taken to a secret facility for questioning, the press and several important customers were transported to a function room at the Amsterdam Hilton, where Meyer Sound proceeded to blow our minds with two major new releases.

Touted as “the most innovative redesign of its point source loudspeakers since the introduction of self-powered systems more than two decades ago”, Meyer Sound’s new ULTRA X-40 is a new compact self-powered loudspeaker designed to revitalise the market space long-held by the UPA-1P. Its driver heritage stems from the LEO family, with a

concentric driver configuration using dual 8-inch neodymium magnet cone drivers coupled to a low-mid waveguide surrounding the single 3-inch diaphragm high-frequency compression driver. The 110° x 50° Constant-Q HF horn is very easily rotatable; you basically grab it and twist.

The onboard class D amplifier produces

a total peak output power of 1950W, and the whole thing weighs in at a ridiculously light (for Meyer Sound, anyway) 25 kg. Preliminary performance specifications have it reproducing 60 Hz to 18 kHz, with linear peak SPL of 130.5 dB measured with M-Noise, Meyer Sound’s new more ‘musical’ test signal.

The demonstration of a pair at FOH was stunning. This is a beautiful, beautiful box, with high end that I could listen to for days without fatigue. We listened both with and without subs, and a pair of these with subs could easily fill a 500 pax room with almost no processing, and still have headroom for days.

This would have been a big enough audio deal by itself, but then Meyer Sound upped the ante with a demonstration of Spacemap Live, their new spatial audio solution designed for mixing music on the fly. Running on their existing Galaxy processors, Spacemap Live

enables sound designers and mixers to define 'Spacemaps' of multiple loudspeakers at will, and then pan sources seamlessly between them, with tactile control from the Spacemap app, demonstrated in this instance on multiple iPads. It's a new implementation of what Meyer Sound (and previously LCS) have been doing for years with companies like Cirque du Soleil, and other major theatrical productions.

It's radically different to both L-Acoustic's L-ISA and d&b audiotechnik's Soundscape in that it allows total freedom of loudspeaker type and placement. It's really up to the sound designer to make the coverage work, while Spacemap Live provides a rock-solid tool kit to move sound with beautifully managed panning across any group of outputs. The phase coherence of a complete rig of Meyer Sound loudspeakers certainly helped the effect, as Steve Ellison, Director of Spatial Sound for Meyer Sound, mixed tracks in real time at FOH. I particularly liked the matrix view available in Galaxy which lets you get a view of levels across all of your matrix outputs, giving you visual reassurance your multi-channel panning is working. Spacemap Live has been tested with up to four Galaxy processors connected via AVB, though that's by no means the upper limit.

"We wanted to create a spatial mixing interface that is quick and intuitive," said Steve Ellison. "We've been using OSC for

these kinds of things for a long time, and this Spacemap prototype uses it, though that doesn't mean the final product will. It's designed to be quick, configurable and manageable. You want to be thinking about music when you're mixing music, not spreadsheets or CAD."

Curiously, the genesis of Spacemap Live can be traced back to Steve Ellison's adventures in Canberra in the mid 1980s. "In 1986 I had been working for a helicopter company and had the opportunity to go to Australia, where I worked part time at ANU doing computer programming," he explained. "I was making computer music using an early Mac. I knocked on doors at the Canberra Institute of the Arts, which is now part of ANU, and found a group called Floating Exceptions that had built their own geodesic dome with 16 loudspeakers and a few subs, creating a portable multi-channel performance space. There wasn't anything on the market that could do what they needed, so they had to build everything themselves."

"While I was working with them, we had to figure out how to move sound around," Steve continued. "The prevailing technique at the time, put forward by John Chowning and others, used calculations of the distance between loudspeakers to determine fades up and down, but that was inefficient and computationally expensive. I figured out a way

to optimise panning and fades using three loudspeakers, which was much more efficient. It evolved over the years with LCS, then Meyer Sound. Finally, in 1993, the technology caught up and we had a digitally controlled analogue matrix; the first LCS system. The whole foray into developing software for multi-channel started there. For me, it's gratifying to see a technique and algorithm that started in music, which was then adopted and embraced by theatre, finally having come back to live music."

Spacemap Live is being pitched as an easy addition to the existing live music environment. FOH engineer Dennie Miller (21 Pilots, Miguel) talked us through a Spacemap Live mix he'd made of an existing live recording of one of his artists, changing none of his bussing or processing from his existing SD7 show file. He had some interesting observations on its artistic use in the standard rock show environment, like being careful not to do any wild panning with instruments that are obviously located on stage (like drum kits) and instead concentrating on playback and electronic elements for more immersive effects.

Spacemap Live will be a firmware upgrade to existing Galaxy processors, with no hardware modification required. It remains to be seen if this will be at an extra cost, or with an ongoing license fee.

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PHIL COLLINS

by Cat Strom

Cheekily entitled I'm Not Dead Yet, Phil Collins' current tour proves just that!

With production and lighting design by Patrick Woodroffe, the show has been touring the world for almost two years with associate lighting designer Roland Greil at the helm of the MA2 console.

"It's a great artist and band to work for, as well as a great production to work with, because it's an old school rock'n'roll family production style," commented Roland.

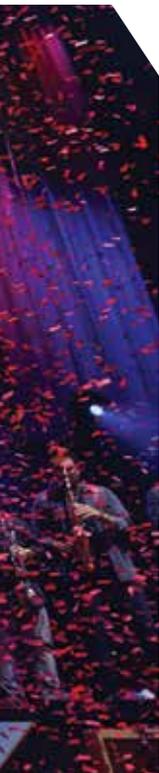
The original design and thinking process was based around London's Royal Albert Hall because initially the plan was to do five shows there, then Paris and Cologne were added and, before you know it, a world tour had begun!

"So to start with, the design was based on the Royal Albert Hall, and then we had to make it work for arenas and stadiums as well," said Roland. "As usual, Patrick had the vision and big picture – fortunately most of the time our visions are aligned as we have a similar mind set. The resulting design was still about 90% how we originally designed it."

Patrick and Roland recognised that they were dealing with an artist who had his 'heyday' in the 80s and 90s, so they wanted to create a look that suited that era.

"We didn't want it too 'digital' but we still needed a versatile rig that could allow very theatrical, intimate looks as well as doing





some big, powerful rock'n'roll looks," said Roland. "If you look at Phil's music it is very versatile with upbeat, strong powerful numbers and intimate ballads. You need to be able to give the performance onstage the perfect picture frame around it."

The lighting design relies heavily on two fixtures; the Robe BMFL, used as keylight and backlight, and the Claypaky Scenius Unico, used as an effect light.

"When the tour started, the Unico was a new fixture and I was impressed that finally there was a light that could do multiple jobs including being a really good substitute for a classic wash light," remarked Roland. "Therefore, you don't find any wash lights in our rig as the Unicos act as wash lights, spot lights and beam lights."

Downstage is an advance truss holding 10 Robe BMFLs, mainly for key lighting the band onstage, interspersed with nine Claypaky Unicos to create looks. Also on the truss are a bunch of 4-Lite Molefays to light the audience and 14 TMB Solaris Flares.

"The Solaris Flares are used as strobes for only 30 seconds in the entire show but we use them as a blinder / molefay substitute which can also change colour," explained Roland. "In my opinion, it's still no substitute for a classic tungsten-driven molefay but it's a great fixture none the less."

Either side of the advance front truss are two side trusses sitting above the IMAG screens as an extension to the main rig, making a big wide look. They are similar in set up to the main front truss but instead of Robe BMFLs there are Claypaky Mythos to create beam or spot looks. Two wing trusses are filled with 8 Unicos to create nice looks from the side.

Three horseshoe-shaped trusses are hung above the stage, again with BMFLs and Unicos, plus a few Solaris Flares. Roland says that he likes to keep the variety of fixtures down to ensure you get a cohesive look out of the rig. The middle truss holds one Robe BMFL RoboSpot dead centre which is used as a backlight spot for Phil.

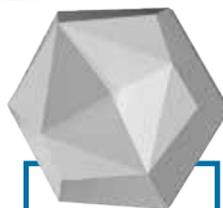
"It's operated by the Robe ground control system which saved us putting a spot chair up there, which is visually nicer, safer, and also more practical," added Roland.

In a reference to the 80s, upstage there is a starcloth that works its magic during a ballad, completely changing the scenery again. On the starcloth truss there is also a tabtrack with a silver grey curtain resulting in three different looks: starcloth off you get a classic black backdrop for strong lighting looks, starcloth switched on for twinkly stars, or close the silver grey curtain and light them up with GLP X4 Bar 20s for a strong, colourful background.

There is also a row of GLP X4 Bar 20s on the floor to light up the curtain as well as tilt forward for a nice even curtain of light. Two verticals, one stage left and one stage right, contain five Robe BMFLs each for side lighting as well as a few Solaris Flares that face the audience. Together with the front truss, these create a picture frame around the stage.

Misty Buckley's simple yet elegant and theatrical stage design features a curved band riser with a 2.5 metre high LED back wall creating a seamless digital backdrop. On top of that wall are Mythos to provide back light from a lower position as well as create beam looks. Behind the band on the riser, there are six more Mythos either side for classic floor lighting shooting up in the air.

Specials in the show include a couple of elegant Robe PATT 2013 fixtures on stands which are rolled in for the first two songs. In fact the first song of the show is just Phil Collins sitting on a stool with the two PAT 2013 fixtures behind him. Two very old school Stubbie PAR cans are downstage centre for the intro to In the Air Tonight, creating classic uplighting to make his face menacing.



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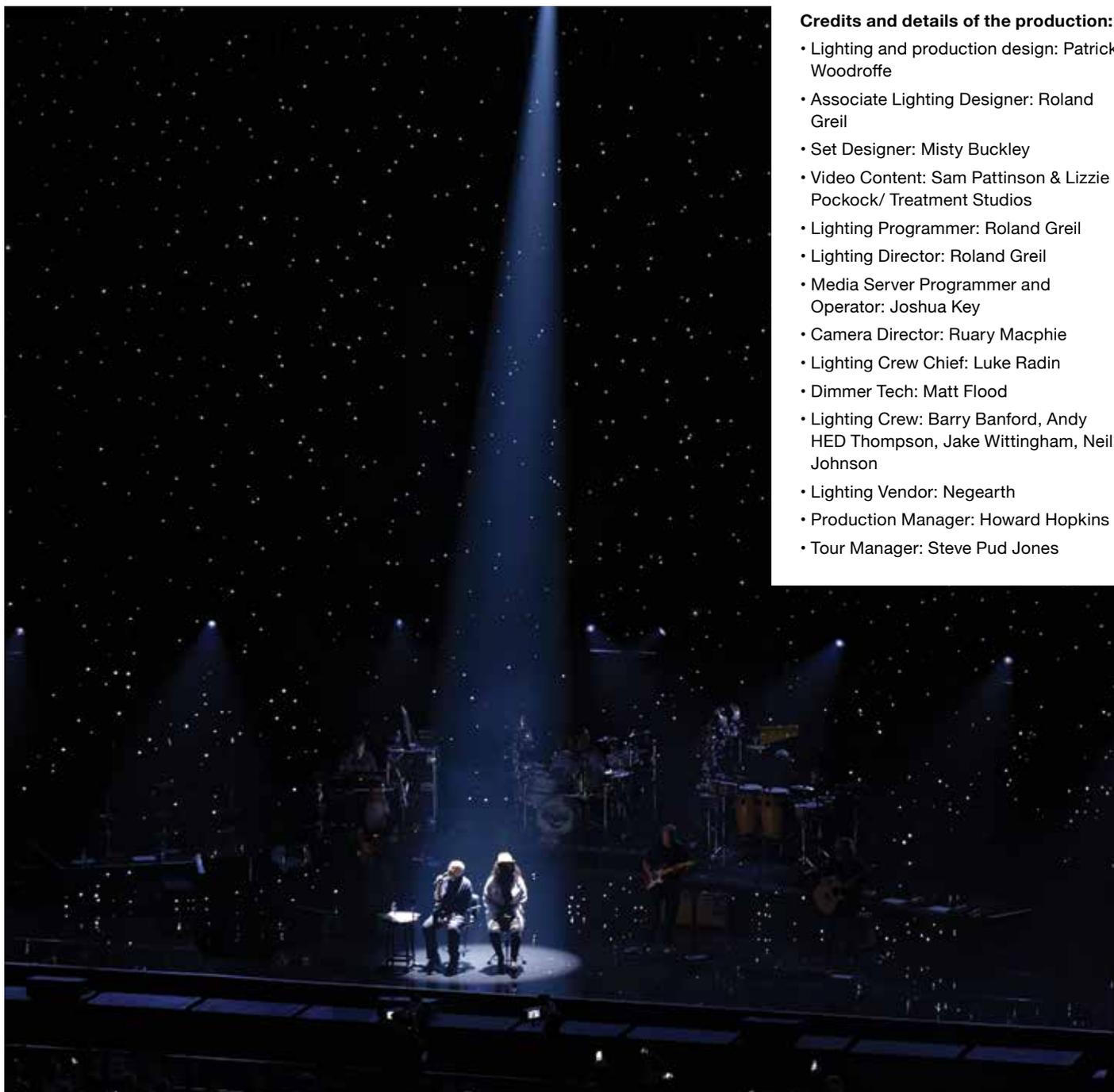


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Credits and details of the production:

- Lighting and production design: Patrick Woodroffe
- Associate Lighting Designer: Roland Greil
- Set Designer: Misty Buckley
- Video Content: Sam Pattinson & Lizzie Pockock/ Treatment Studios
- Lighting Programmer: Roland Greil
- Lighting Director: Roland Greil
- Media Server Programmer and Operator: Joshua Key
- Camera Director: Ruary Macphie
- Lighting Crew Chief: Luke Radin
- Dimmer Tech: Matt Flood
- Lighting Crew: Barry Banford, Andy HED Thompson, Jake Wittingham, Neil Johnson
- Lighting Vendor: Negearth
- Production Manager: Howard Hopkins
- Tour Manager: Steve Pud Jones





Four Robert Juliat 4K Lancelot follow spots are on Phil most of the time, and occasionally used for solos on stage.

The lighting builds throughout the performance, creating a story arc in the show. All the moving lights are used fairly early on, but two elements are kept as a surprise for later. Firstly the GLP X4 Bar 20s are not switched on until 2/3rds into the show when the silver curtain appears and this results in a whole new look to the show. The Solaris Flares are also held back until In the Air Tonight when they are given a spectacular moment to impress!

“It’s always better not to over-use gear. It’s better to be efficient and effective, which

creates space for some big ‘wow’ moments,” commented Roland.

The tour carries two full-size MA2 consoles and three MA2 light consoles. The full size consoles are used for the show lighting, one as a backup, whilst one MA2 light is used as a tech console so the guys can test the rig onstage during load in. The other two MA2 lights control the Catalyst media servers, playback content, and treat IMAG from FOH.

Roland, who acted as the show’s associate designer, and who has programmed it and taken it out on the road, avoids timecode for concerts as far as possible.

“We have a very talented band onstage

playing music and they don’t play to a click, so it’s a very live feeling and that needs to feed through to the lighting,” he explained. “Obviously there are some shows where you have to use timecode but with a classic concert like this, as long as the guy behind the console understands the music it will always be better done manually. It’s the same with music, it’s those moments where you’re a little bit off track playing those ghost notes as a musician that makes it groove and interesting.”

Lighting was shipped over from Neg Earth with the stadiums supplemented by Creative Productions.

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Networking - the Cables

by Simon Byrne



In this piece we'll discuss the cabling for a robust IP network in a show environment. If you want to get geeky with IP addresses, subnets, DHCP servers and the like, check out my previous article "Mission Critical Show Networks" in CX118 (<https://www.cxnetwork.com.au/cx-magazine/cx118-september-2016/>).

It is rare to see an analogue multicore on a gig nowadays. That big, heavy, cumbersome, sometimes noisy cable is being replaced by a single Ethernet cable on an IP network.

So, if we are using an IP network on our show, what cable should be used?

When it comes to the world of IP infrastructure, "category cabling" (Cat5E, Cat6, etc.) is king. It is cheap and easy to terminate, and it is everywhere, which leads to ubiquity in the marketplace. That's why manufacturers have found ways to use twisted pair Ethernet cabling for the distribution of audio and video.

The most common Ethernet cables are Cat5E and Cat6.

Cat5E cables support up to 1 Gigabit Ethernet speeds. However, Cat6 cables are usually a better choice than Cat5E, because they are compatible for 10 Gigabit Ethernet, have lower crosstalk, and higher signal-to-noise ratio.

Both types use four tightly twisted pairs in each cable, and incorporate copper wires. Cat6 cables have more stringent specifications for the reduced crosstalk and system noise. A spline is part of the Cat6 design, isolating each of the four pairs of twisted wire. This makes Cat6 cables more rigid.

Because Cat6 cable offers significantly lower levels of interference and near-end crosstalk, it delivers a quieter system with reduced errors and higher data rates which is especially important when you are moving realtime audio and video.

Cat6 cables generally run around 10 to 20% more expensive than their Cat5E counterparts, but both are relatively inexpensive. The potential boost in speed provided by Cat6 cables over Cat5E cables makes it a no-brainer as it offers a significant level of performance improvement and greater noise rejection at low extra cost.

Talking of speed, 1 Gigabit hardware is fine for most applications. Having said that, I can see a need for 10 Gigabit switches and backbone if multiple 4:4:4 video streams are on a network. With Dante's new video solution (Dante AV), each stream at its highest quality will consume up to 0.8 Gigabit of bandwidth. That is, one stream per 1 Gigabit link. Therefore if you need to move more streams across a single cable,

10 Gigabit hardware might be appropriate for that part of your network.

Shielded or not? I was chatting with Steve Lampen from Belden Cable at AES. With over twenty-five years in the cable industry he is quite bemused by the production industry's fascination with shielded data cable. According to Steve, shielded UTP cable can actually perform worse than unshielded!

Twisted pair without a shield already inherently rejects noise well, as much as 100 dB. It is achieved by taking advantage of the magnetic field that appears around a wire when current is flowing in the wire against itself. The polarity of the magnetic field is tied to the polarity/direction the current is flowing in the wire. If we place the two wires of a pair right next to each other, the opposite current flow in each wire will in turn create equal but opposite magnetic fields. The two opposite magnetic fields from each wire then cancel each other out. The cancellation of the magnetic field in wires in turn cancels out the natural inductance in the wires, that is, the induced noise!

By adding a shield, you can actually disrupt the symmetry of the magnetic fields surrounding the conductors, which can degrade performance. So noise reduction by way of the shield may be offset by reduced performance of the twisted pairs within.

So, what to get? I'm still in the shielded camp because it provides mechanical protection and that is really important for temporary setups. The shield is also essential when using CAT5/6 to XLR breakouts as it provides the ground.

For fixed installations, any cable that meets the CAT5E/6 specification is fine. For touring applications though, you need cables that stand up to the rigours of the road. Canare, Klotz, Eurocable and others all make flexible tour-grade network cable. Most of these cables theoretically don't quite perform as well as the installation grade cable because compromises had to be made to make them strong. However, we don't work in a theoretical world, and they easily have the data throughput needed.

As we increasingly rely on network devices, many of them are being powered over the CAT5/6 cable, typically 48 volts.

Called PoE, this is a similar concept to the phantom power on XLR used for powering condenser microphones. Power is transmitted on the data conductors by applying a common voltage to each pair. Because twisted-pair Ethernet uses differential signalling, it does not interfere with data transmission. For Gigabit Ethernet and faster, all four pairs are used for the data transmission, so all pairs are used to deliver power as well.

There are two standards; PoE and PoE+.

PoE devices can supply a maximum of 15.4 watts per port, and PoE+ devices can supply 30 watts per port.

However, some power is always lost over the length of the cable, and more power is lost over longer cable runs. The minimum guaranteed power available at the device is 13 watts per port for PoE, and 25 watts per port for PoE+.

Network Switches with PoE have a maximum power budget, which is the total amount of power they can supply to the client devices at one time. Most network switches do not have a high enough power budget to supply the maximum possible power to all PoE-capable ports, because most users do not require that much power. When you are shopping for a PoE-capable network switch, make sure that you calculate your required power budget carefully for all of the PoE devices that you plan to connect.

Fibre is the other network cabling technology, and it provides more bandwidth over longer distances than twisted pair, and because it uses light, it is immune to electromagnetic interference.

There are two types of optical fibre: single-mode and multi-mode. People sometimes confuse single vs. multimode with the number of fibres within, the actual difference is the size of the glass centre of the cable.

To understand the differences, you first must understand how optical fibre works. Optical fibre is a very thin strand of pure glass, which acts as a wave-guide for light rays over long distances. Single-mode and multi-mode fibres differ in the way they construct these glass pathways. Both cables guide light down the centre of the fibre called the "core". However, the physical difference between single mode and multimode fibre is the core size, which has a direct impact on distance and speed.

When light travels, it travels in several directions (called "modes"). The core on multimode fibre is wide enough that the light distributes in multiple "modes" at once, meaning the light "bounces" along the sides of the cable, causing more of the light to bleed out into the cladding around the core. As the different modes of light "bounce" along the sides of the core, the "bouncing" light (the transverse modes) slow down, causing "modal dispersion." This "modal dispersion" is similar to how indirect sound reflecting off walls or the floor is delayed (or echoes) from the source sound. The result of the light bleeding out and the modal distortion is that the signal degrades as the light travels along the cable. Multimode fibre can distribute

data far (up to 300 meters depending on the signal type), but it could travel much farther without the modal dispersion.

This is the main point behind single mode fibre. Single mode fibre has a very small core (only 9 microns vs 50-60 microns for multimode) that allows only one "mode" of light to travel down the core. This means less light bleeding into the cladding and no modal dispersion. Thanks to this narrower cable and thicker cladding, there is nowhere for the light to go except straight down the line. The result is a cable that can carry data, including video, up to 10 kilometres from the source.

However, because single-mode fibre cores are so small, the technology required to make it work must be small as well. This makes the cabling and other elements (light transmitters, detectors, etc.) in a single-mode fibre system more expensive and fragile. Typically, you'll use multimode fibre to connect different AV

systems or devices in a single building. It is cheaper to make, and a bit more forgiving. Single mode fibre only really needs to get used on very long runs between sites.

A clever example of a single mode fibre deployment between buildings is the television sound at the Academy Awards in Hollywood. The awards are staged at the Dolby Theatre, but most of the sound is mixed, and many of the musicians are at Capitol Studios, nearly three kilometres down Hollywood Boulevard! The musicians from both locations are mixed together at Capitol, and fed back to the Dolby Theatre. This is achieved by a dedicated duplex fibre, installed between the two sites.

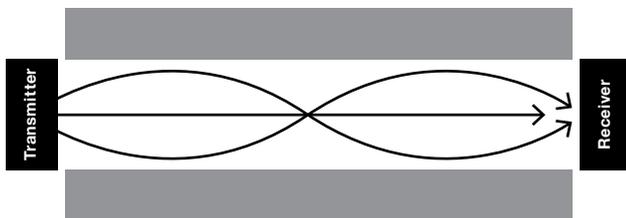
A single fibre only permits a simplex feed, that is, a one way communication at any one time. Duplex systems, on the other hand, have two fibres for bi-directional communications which is needed for a true IP Ethernet network. Therefore when buying fibre, you can buy

cables with multiple fibres within a single cable.

The ends of fibre is delicate and difficult to terminate unless you have the training and tools. Therefore in my view, it is best to buy terminated cables done by professionals. It is also very prone to dust and dirt so the ends must be covered when not in use. Neutrik's Opticalcon connector system is designed for touring use and keeps the fibre ends protected when not in use.

Never look down the core of a fibre. The light emitted is beyond visible wavelengths and it is highly collimated. You can permanently damage your eyesight with this highly focussed invisible light source.

If it is not already, Ethernet cabling will become the spine upon which all other systems will live or die. It makes sense to adopt some smart strategies combined with quality cable and connectors to ensure systems run flawlessly.



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See what's going on: NETWORK LAN SCANNING

by Simon Byrne

When diagnosing problems with your show local area network, a LAN scanner is an indispensable tool.

LAN scanners are programmes that pings all the IP addresses on a LAN. A ping is a basic network command that allows a user to verify that a particular IP address exists, and can accept requests. Using ping, a LAN scanner reports what comes back, on what IP address, including the MAC addresses and hostnames (if available).

This is powerful information as you can immediately see what is plugged into your LAN, and quickly identify errors in addressing, missing clients and so on.

Once devices on your network are identified, you can further run a port scan on IP address to check whether it is accepting requests on the ports you require.

A network port is a number that identifies one side of a connection between two devices. Devices use port numbers to determine to which process should be delivered.

Think of a network IP address like a street address, and the port numbers are like suite or room numbers at that address.

When I wrote this, I was not on a job, I was waiting inside a Qantas International Lounge on the way to a gig! So I scanned the WiFi while waiting for a flight. In the image you see all the users connected to the Qantas lounge WiFi. If I was a hacker, I would then start scanning all the ports on each device and look for vulnerabilities...but I am not a hacker. This by the way, is precisely what a hacker would do to see if he/she could get into your show network. I hope you get the idea.

Using a LAN scanner on a show network is by far the fastest way to identify and diagnose connectivity problems. If there is a WiFi access point on your network, there are LAN scanners for iPhone and Android too. A real time saver!

Try one of these scanners

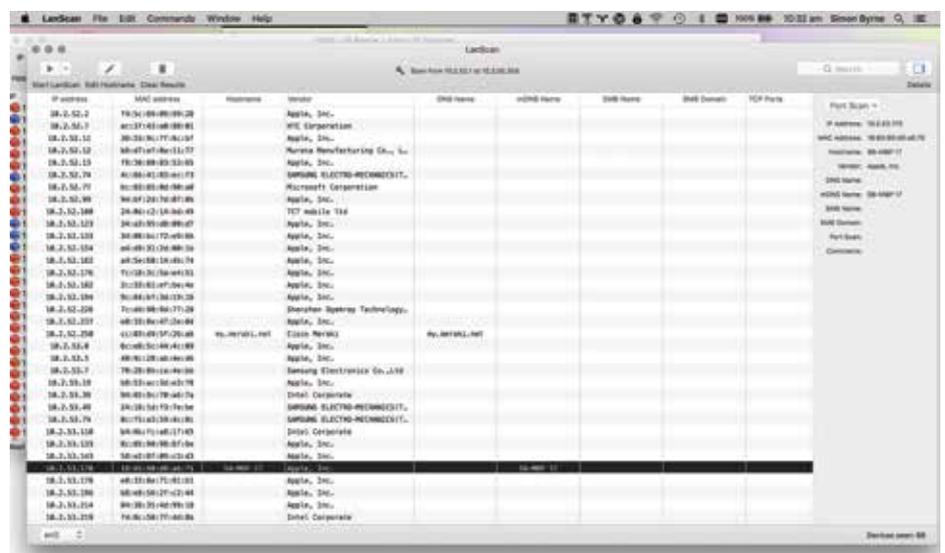
Angry IP Scanner (Windows and Mac)
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<https://angryip.org/>

Advanced IP Scanner (Windows)
www.advanced-ip-scanner.com

LanScan (Mac)
Feature rich scanner for Mac.

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NETWORKING – NOT JUST 1S & 0S

by John O'Brien

My dictionary defines 'networking' as "a supportive system of sharing information and services among individuals and groups having a common interest." No routers, no switchers, and no RJ-45s.

This is a tech magazine targeted at an industry that is in transition from analogue to digital distribution. I could go on about topologies, universes, schema, packet loss, DHCP, HDCP and all sorts of arcane IT networking terminology. Here's another no less important take on the term 'networking'.

It has little to do with technology and everything to do with you.

Professional networking

Our industry relies heavily on personal and professional networks. Early on in my time, I might have called this nepotism. I mean, if you



are technically across your game, you're an obvious pick for the squad, right? Well, yes and no. What many (including a younger me) miss is that you will have to fit in to a team. It's no good being a maestro at XYZ if you are a

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Meeting someone from 'the network' on the street can give a deep sense of belonging to something greater

problem to work with. As the age old maxim goes - there's no 'I' in 'team'.

Finding a gig is not that easy. While various outlets do have job boards like CX, many other (particularly casual) jobs are not advertised so readily. It can sometimes come down to knowing the right people and being in the loop with them when the decisions are being made. Trotting out another well used meme - 'It's not what you know but who you know.' Not very egalitarian but very real in business.

For live work, you can be only as good as your last show. Without a strong network you're reliant on reputation alone and consistent mis-steps will be noted. This industry is also relatively small - make a big mistake and everyone knows about it pretty soon. Now that we are all online 24-7, have an off night on camera and it can quickly go very publicly viral.

Industry and advocacy bodies like ALIA, AES, Music Australia, CEDIA, AVIXA / Infocomm, AETM (and the list goes on) are great networking opportunities for those well established in their field and a good place for newer members to start alliances. You don't need to be a member of the Davos Forum to make mutually profitable connections.

Social networks - online

Social media - always on, instantly connected, FOMO, fake news, - a fully digital life has both benefits and pitfalls. Worldwide connectivity, real time news and information, bonding over



common interests, finding assistance - all too easy when it's just a click away. Online communities can be a force for social change outside more traditional avenues too. Look to the Arab Spring or France's recent Gilets Jaunes movements as examples. These and more are beneficial reasons to click the 'sign me up' button.

The main cost of this Faustian pact is your privacy - easily given, very hard to retract. Don't forget that your social convenience is often being mined by mega corporations for saleable data.

These platforms are now so pervasive that it is difficult to not join in. I have relented and joined LinkedIn. It's allowed me to stay in contact with old colleagues, especially in an industry where people move about a fair bit. I've been headhunted a couple of times from this service but also stalked by an ex and I really don't know where my data has ended up. Pros and cons folks...

However, I already have enough online

interaction in my life to not fill my screen with any other social media feeds. I accept that this choice is rare in these times and it does come with the penalty of missing out on much information like births, deaths, marriages, etc. For me, a more personal touch more than outweighs the negatives of this approach.

Social networks - offline

I now live in a small country hamlet and the value of social connection is amplified here. Help can take a long time to arrive when you need it and you learn to lean on the neighbours (and them on you). Once, information passed slowly over the back fence or at Sunday gatherings. The advent of telephony brought the phone tree, where each person spread the message on and out. Now I administer an email list group that acts as our bush telegraph. It covers a large percentage of local residents and regular visitors, gets to everyone in real time and lets us share goings on without the pitfalls of Chinese whispers. It's taken some careful moderation at times but is very successful as a community building tool.

Another personal rural example is the CFA - a state-wide network of volunteers who band together to help each other out when fire and other emergencies threaten. My partner and I are active members and, as I type, have spent four of the last five days fighting and cleaning up a nasty 64Ha fire that started 600m from our doorstep. It's hot, scary and dangerous but the network provides equipment, training,



Maintain the network

and bands everyone together for a common goal. It was especially gratifying to see CFA members from surrounding districts dropping everything and risking their lives to save our locale. We've done it for them before and will do so again. The bonds forged in such a network are strong.

Churches and religious groupings of all persuasions are prime examples of community networks seeking a shared purpose. Well-established groups such as Lions, Rotary, CWA and so many more are also similar in forging relationships that work towards the same end. Community gardens, men's sheds, book clubs, knitting circles, maker labs, co-working spaces - all give a

sense of comradere and inclusion that is not so apparent with online groups. Having this link over one issue also strengthens the bond outside the immediate group interest. Meeting someone from 'the network' on the street can give a deep sense of belonging to something greater.

Maintaining the network

Social capital is somewhat stronger when you see or correspond with these people on a regular basis. Just as our technology and tools need maintenance, so do our networks. If you regularly contact people from your list, however you do it, you'll keep the links alive. I make a point of calling someone different from either my personal or professional

networks every week, just to say Hi. I may not have any type of current business with them but keeping the connection alive keeps me in their minds, so if any relevant work or social opportunities do arise, I'll be the first person they go to. A little effort to make a call to or visit a real-world friend can bring untold reward beyond getting your tweet count up and the 'likes' are so much more real. Try it some time.

Right about now, many of you will be attending ENTECH. Yeh, you'll be checking out some cool gear but I'll bet you'll also be catching up with colleagues, clients and suppliers. Guess what - you'll be *networking*.

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THE RIVERSIDE STABLES

William Inglis & Son embrace both heritage and high-tech with The P.A. People

After 101 years at their Randwick premises, Australian bloodstock auctioneers and horse racing institution William Inglis & Son Ltd have moved to a vast new purpose-built premises, The Riverside Stables Complex at Warwick Farm 40km north-west of the Sydney CBD. Boasting a 144 room five-star hotel, more than 800 stables, a conference centre, and extensive hospitality suites and services, the Riverside Stables is now the home to the biggest sale events on the equine calendar, including the Australian Easter Yearling Sale, The Sydney Classic Yearling Sale, the Chairman's Sale Breeding Prospects, the Australian Broodmare & Weanling Sale, and the Inglis Ready2Race Sale.

With timbers reclaimed from the original facility at Randwick, Riverside Stables was designed to honour the long heritage of William Inglis & Son Ltd while bringing its operations into the future. To this end, AV integrator The P.A. People were called upon to design and install extensive networked video, audio, and control systems across the Complex, enabling auctioneers, buyers, sellers, guests, and service providers to access sound and vision from any part of the site at the touch of a button. As part of their brief, The P.A. People were also tasked with equipping the Sales Arena with theatrical-grade PA and lighting systems, giving the facility the flexibility to host entertainment and major events.

Distributed Flexibility

An astonishing 110 LG screens are fed signal by Exterity IPTV endpoints, distributing video from live cameras and PCs during auctions, while 320 JBL speakers around the facility and the Bose ShowMatch PA system in the Sales Arena are connected over Ethernet with sources available from 210 inputs, including 14 Shure radio microphones that can be mixed and routed automatically by the end-user. Guests in the hospitality suites, corporate boxes, and meeting rooms can send their device's outputs to their own screens, take feeds from the auction areas, and control their own audio. All of these functions are controlled simply and intuitively

via installed touch panels.

Two large VuePix LED screens measuring 4.5 metres wide and 2.5 metres high flank the entrances to the Parade Ring in the Sales Arena, with a third at 2.5 metres wide by 1.5 metres installed above the auctioneer's desk in the middle of the ring. Their sheer size meant The P.A. People had to collaborate closely with the architect and builder to ensure the correct supporting and rigging infrastructure was put in place.

Working with client representative Podia, service coordinator CS Infrastructure, and builders FDC, The P.A. People's design team, including Managing Director Chris Dodds and Project Manager Ross Ford, created a specification based on analysis of the functions of the old site created by engineering consultants Marshall Day. This set a benchmark for functionality that was expanded on in discussions with the client.

Convergence – a No-Brainer

"After we engaged The P.A. People, they visited our auctions at the old site," related Deane Jacobs, CIO of William Inglis & Son Ltd. "The limitations of the old system were quite clear, and I flagged some of the issues I foresaw arising with the move to Warwick Farm. Something we knew would be key to the success of video at Riverside would be a low latency IPTV network. The Australian Turf Club is running Exterity IPTV systems at four sites, including Rose Hill. After visiting these sites and talking to the technicians, I was impressed with how easy Exterity is to control, and integrate with digital signage. We then found out that the Accor Group, who run The William Inglis hotel at Warwick Farm, use a VOD system that has a plug-in for Exterity, so it became a no-brainer. We were initially concerned about the latency of the IPTV system, but The P.A. People helped us to get it down to 250ms, a vast improvement on our IT standard of one second."

With all vision being implemented on the site-wide converged network, audio naturally followed, with Dante chosen as the method of choice. "The P.A. People put forward Dante

early on," continued Deane. "The modular capabilities and flexibility made it an easy choice, along with the fact that The P.A. People have so much experience delivering projects of this nature. Their insight meant that they anticipated many requirements that we wouldn't have considered, and in hindsight, they all made perfect sense."

Practical Experience

While dealing with the heady virtual world of digital audio and video, The P.A. People also kept their minds firmly on physical practicalities; "The P.A. People were a great help to us in considering simple physical requirements like cabling and conduit that we would have overlooked," illustrated Deane. "For example, some of our auctions are televised, and OB trucks come in for the events. The P.A. People ensured that cabling, patch points, and wall boxes throughout all run through conduit to where they need to go, and to the parking area for the OB trucks. Because of this, we're able to position cameras anywhere they need to be, and able to route any cabling they bring in. There's no propping open doors, running across high-traffic areas, or running cable trays; it was all considered."

Integrating all audio, video, and control functionality on the network has also provided Riverside with huge efficiencies. "This is the first time we have implemented a converged network at Inglis, but it's something we needed in terms of flexibility that it offers," confirmed Deane. "When OB trucks come on site, we can simply hand them a configured Ethernet switch patched to our system, and they can get all of the audio and video they need, plus our xml feeds for their overlays. All of that is available from our standard network, and no-one has to run separate cabling."

Major Capabilities

With the Sales Arena set to function as a multi-purpose venue, its stage was treated to a lighting and sound system capable of hosting everything from Inglis's prestigious auctions to a touring band. The Bose ShowMatch line array PA system provides enough power for any live act, while the industry standard Robe, ETC and PR Lighting fixtures controlled by an LSC Clarity lighting desk enable the venue to create the ambience



for a banquet dinner or an eye-popping variety performance. The venue is designed to run in two modes; simple automatic mode, in which auctioneers can use both lectern and radio microphones, adjusting volumes via a simple graphic interface on a touch screen; and full production mode, in which the venue's installed concert-sized Yamaha CL5 digital mixer and remote Dante stage boxes can be used by technicians for full control of large shows.



Making a complicated system easy to use is no easy task, and all of the effort happens behind the scenes in programming. "I spent a month pre-programming, creating interfaces, and building the logic that makes the system understandable," said Dmitry Istomin, Programmer and Commissioning Engineer for The P.A. People. "On an everyday basis, the client does not need the system's operation to change that much; the biggest challenge was to create a user-friendly,

easily understandable graphic interface that enabled staff to do everything they need simply and automatically." Dmitry utilised the advanced processing and routing capabilities in multiple BSS Blu DSP units, Crown DCi power amplifiers, and Bose networked amplifiers, all controlled and monitored from a single software interface in Harman's Audio Architect, giving technicians a powerful back-end to operate and maintain the system.

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- 16 x PR XLED 3019 moving head wash lights
- 8 x Robe Robin BMFL Blades
- 16 x ETC CS Spot profiles
- LSC Clarity LX300 lighting console
- Bose Showmatch Main Sound system: 10 x Mid-High, 4 x Subs with Bose PM8500N network amplifiers
- BSS audio control
- 14 x Shure QLXD radio mics sitewide

Partner Testimonials

Cameron Thomson – Director, Podia, client representative for William Inglis & Son

“While this was our first time working with The P.A. People, I have to say they were fantastic. Chris Dodds and the team are both knowledgeable and helpful. They proved to be excellent communicators that convey technical information and requirements clearly. The systems they designed and provided met the expectations of the client, who are now very happy; the first sale run at Riverside was a resounding success and broke the record for their February event.”

Mark Mothersole – Commercial Manager, FDC Construction and Fitout

“It’s not every day you put together a \$140 million equine facility, and a lot of work went into the coordination of the services, particularly in the hotel. The P.A. People attended weekly coordination meetings with the rest of the trades and ensured everything went smoothly. They worked closely with Inglis and ourselves on all technical aspects, including the supporting infrastructure needed to install the large LED screens in the Sales Arena. This was FDC’s first time working with The P.A. People, and I wouldn’t hesitate to work with them again.”

Matthew Organ - Service Coordinator, CS Infrastructure

“I worked closely with Chris Dodds and Ross Ford from the client side, making sure the customer outcomes were as Inglis had specified. The P.A. People were conscientious in providing status and progress reports, feedback on issues, documentation, and review material. The audio and video systems they provided are cutting edge. The entire precinct captures the look and feel William Inglis & Son intended, and the AV system provides all of the interactivity and flexibility that was planned. My client got a good end result, and are very happy.”

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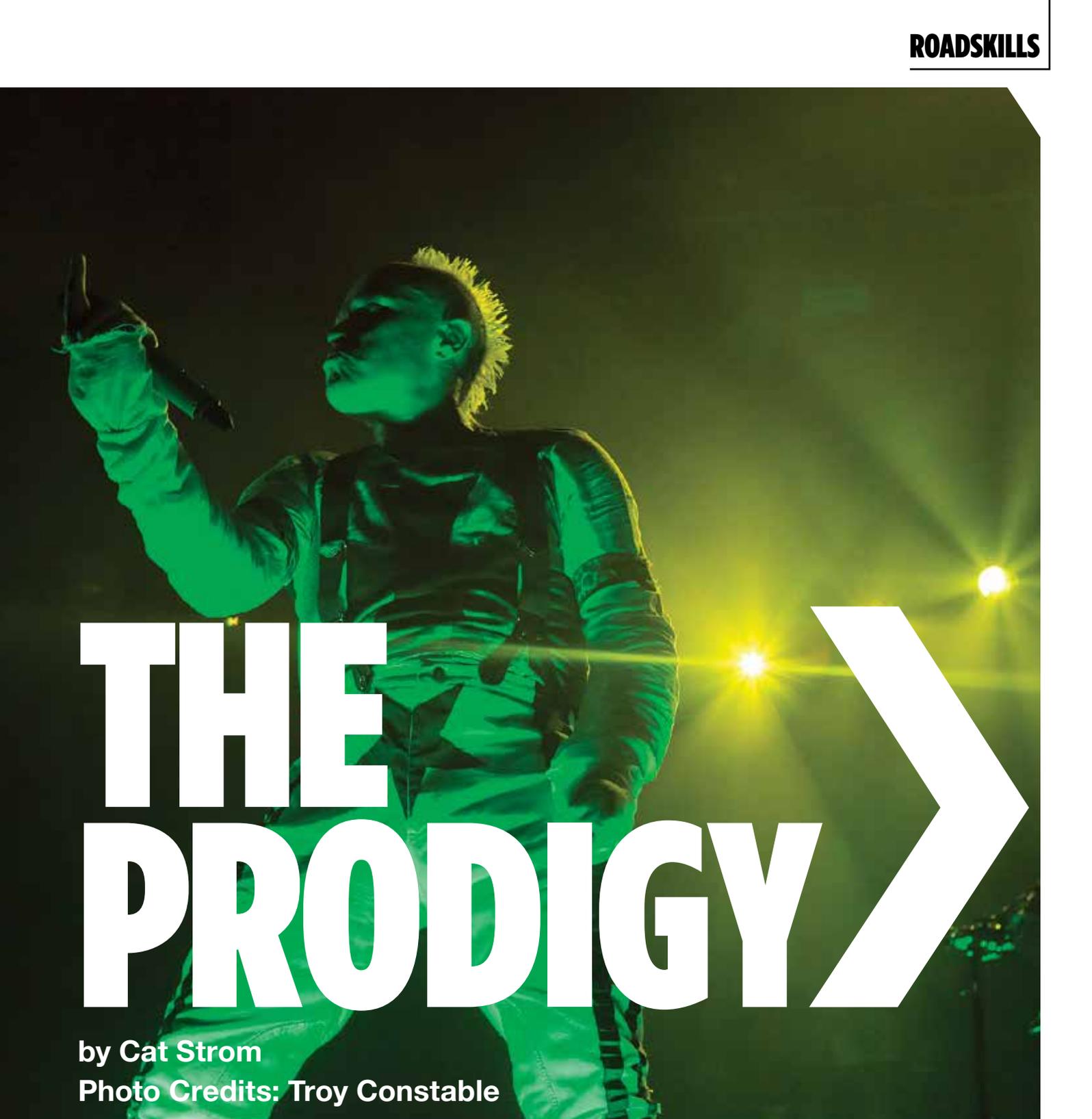
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THE PRODIGY

by Cat Strom

Photo Credits: Troy Constable

Loud, Powerful, Bright...it must be The Prodigy!

Jonathan Burton has been mixing FOH for The Prodigy for 15 years and surprisingly he still has his hearing! Whilst not on the road with the band, he follows a more sedate life style lecturing at various UK Universities, as well as worldwide, and running his own recording studio.

The Prodigy do not tour that often, preferring to play festivals where the schedule can sometimes be brutal but it does allow Jon to sample a wide variety of audio equipment. You can look at it as getting private demos everywhere he goes although Jon says in

reality they're sometimes trying to fob him off!

"We get a right collection of stuff which makes it interesting, although it can be frustrating at times," he commented. "I do get to hear lots of new and different PA systems. Plus I get to work with interesting crew and meet some nice people."

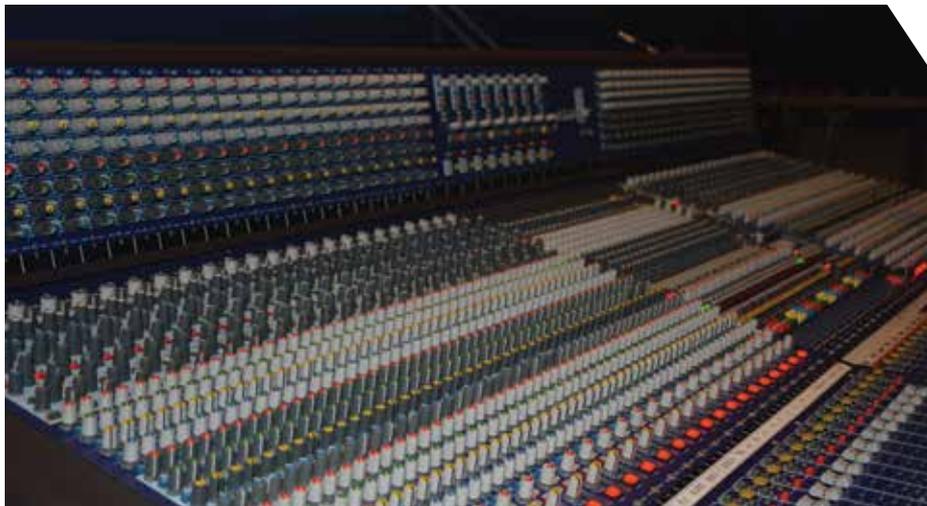
Jon admits that most of the modern speaker systems are very good these days, although there are a few that make his heart sink. However, there is one constant on his rider; the Midas XL3. Having said that, in Melbourne

he had a Midas Heritage 4000.

"The Midas Heritage has much better facilities and is better laid out, but I don't think it sounds quite as good as a Midas XL3, which is my favourite console," said Jon. "The Midas Heritage 4000 looks just like the Midas Heritage 3000 except they bolted a whole load of extra knobs on what would be the meter bridge. Most people can't reach it which is a ridiculous concept but it does give you 40 auxiliaries, all on knobs. I think it was their last ditch attempt to do a top of the range monitor board for people who want to do loads of in-ear mixing. It also has the worst-designed flight case as it takes



“I like to think it’s more a powerful show than a loud show. It’s an interesting gig, because it is so loud onstage. You can’t fight the onstage sound so we delay everything back to Liam’s keyboard fill. That freaks out a lot of engineers.”



six people to get it out. However, the Midas Heritage is a good sounding console.”

Jon has not made the switch to digital consoles describing himself as a bit of a ‘dub style mixer’ who likes to throw lots of effects into the mix and have everything in front of him. He notes that he finds a digital console too constricting plus he still has not heard one that sounds better than a Midas XL3. When he finds a digital console that is easier to use and sounds better, he’ll make the swap.

“I have just purchased a Midas XL3 32 channel which is a smaller frame format similar in size to a DiGiCo SD10 so it doesn’t take up much room at festivals,” he added. “I’ve also got an add-on little Allen & Heath Qu-Pac desk which is doing some extra channels because I’ve gone down to a smaller console, but most of the channels I use all the time are right in front of me on the main console.”

For Australia Jon is just touring a small rack, pedal board, and a laptop running Ableton plugins, such as emulations of the hardware distortion and echo pedals that he has always

used. In the pedal board there’s a Line 6 delay, used for spinning in echoes, a little Korg Kaos pad and the new TC Electronics hardware controllers for their software plugins. The rack has a TC Electronics D2 delay, TC Electronic M350 reverb and an old wooden dbx100 sub harmonic synthesizer. This is solely used on one drum to make it a really low sound.

Eighth Day Sound provided the East coast tour system including a d&b J Series PA with 20 J Series per side in the main hang and 16 on each of the sides, with B2 subs and d&b J-INFRA subs.

“We use more subs than most people but not all the time, more as an effect,” added Jon. “I like to think it’s more a powerful show than a loud show. It’s an interesting gig, because it is so loud onstage. You can’t fight the onstage sound so we delay everything back to Liam’s keyboard fill. That freaks out a lot of engineers. I’ve had colleagues and friends step in for me occasionally and they’ve all said it’s harder than they thought. The main thing is to deliver

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Jonathan Burton

a dynamic and powerful show but you can't start too loud, you have to build the show so the audience still go wow at the end."

As he loves subs and echoes, The Prodigy is the ideal gig for Jon who describes his gig as rather an old school reggae / dub show, the kind of shows he did when he was young and which he draws from. As the drum beat is standing up against electronic beats it has to stand alone on its' own, so there's lots of big reverbs and delays.

"The big thing this year is the gong drum which is a 20 inch pancake drum that goes through the dbx sub harmonic synthesizer so it sounds like the biggest bass drum in the world," said Jon. "For the first couple of days I would forget we had it and this big thudding noise would startle me!"

Jon says that people often ask him what the

show looks like and he replies that he has no idea as he hasn't looked up from the console in 15 years because it's too damn bright!

As you might expect, the biggest challenge for most of The Prodigy shows is the noise level with the show designed to be between 98 – 100 dB, which is not overly loud.

"Sometimes we get to places where we can't exceed 97dB, and although that doesn't sound like a lot, losing that one or two dB makes a massive difference," Jon stated. "We use a lot of very low frequencies which give you that feeling of sound, it feels loud. I've done experiments on this and it does work. Just by increasing the low frequency, both in amplitude and the frequency range. We go down a lot lower than most shows. Quite often we'll do venues where they expect us to be very loud and are surprised. What is a struggle for us is the C-Weighting because

we're producing loads of really low frequency, we're quite high on the C-Weighting!

"When the bass drops and the audience go 'whoa!' that cheers me up. It is 'The Prodigy experience' which is what it's all about."

All on stage use Sennheiser IEMs, except Liam, who is on loud. Most mics are Sennheiser, and each singer has three mics which they switch between, depending on how broken they are due to heavy handling. Keith was phenomenally good at losing his mic onstage (grey mics on a grey stage was never a good idea) which is why most of his mics are now sprayed a dayglo colour.

Tom Maddox ran monitors on a DiGiCo SD10. The sidefills and Liam's keyboard fill were all d&b, with B2 subs and a mixture of C4 cabinets on Liam and the new V10P cabinets on the sides. Wedges were all d&b M2.

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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 over three decades. He's happy to respond to any pleas for recording or mixing help... contact him at: andy@themill.net.au



Andy Stewart

WAITING FOR SUCCESS TO COME TO YOU

by Andy Stewart

Most bands and solo artists fail in their ambition to make a career out of music for one simple reason: they stand still thinking the industry will come running. If you wait around for that day to dawn, you'll wait a lifetime. Oh, and you need a manager...

When it comes to artists, there's a common misconception that networking simply involves knowing a bunch of people, linking them to your Facebook page, Bandcamp and YouTube presence, and voilà, instant commercial success!

In fact, it's the other way around. You need the 'buzz' surrounding your music to be what draws industry types towards you. You need to produce good music, play live, make awesome film clips, play live some more, and network on a daily basis. If enough fans get excited about your music, influential industry

types will then seek you out. This relationship dynamic puts you in a powerful position. It's also the junction at which, as an artist, you've got to be organised, work hard, have a good manager, and be proactive about building your career.

Because it's not enough to garner industry attention; you want it to be the right kind of attention. For instance, after all your hard work song writing, rehearsing, recording, Facebooking about upcoming gigs, and playing live – building a buzz around your music – you don't want to then just sign with

some dodgy record label that sidles up to you at a gig, that has no real clout, or influence, or budget, because you think their offer is as good as it may get. That is why it pays to get a decent manager from the get-go. A good manager builds and maximises your career by developing a plan of attack that allows you to forge a path through this network, so that when the dodgy label approaches you out of the blue, your actions won't be knee-jerk. Indeed, you may decide that signing to a label is not something you want to do, certainly not until you're in a position of negotiating strength.

I see it like this: the network you surround yourself with (and the larger one that orbits around you whether you realise it or not) is like the ocean, and you and your manager are the ship's captain and navigator. It's not enough to simply have a boat and cast it adrift on this network. Who knows where you'll end up? Moreover, it's important to understand that there's good networking and pointless networking. The right sort of



“If you sit passively, waiting for a stampede to your door, all you will see and hear will be people driving past.”

networking comes through hanging out with a bunch of like-minded people with whom you share a common interest, like music. The pointless, disingenuous type is where you're hob-knobbing with people you dislike, only because of what you hope to extract from them one day. Only the first of these two types is ever effective, almost as an incidental spin-off from the underlying relationship.

Conversely, if you think forging a solid career in the music industry only involves writing songs, recording them, and then sitting there like a fisherman, with your songs as lures waiting for the industry to bite, you'll wait forever. You don't 'land' a career in music – it's not a fish – you forge one.

Get A Manager

As John Watson of Eleven Music (Cold Chisel, Gotyé, Midnight Oil, Silverchair) – Australia's pre-eminent band manager – once wrote about the role of artist's managers: “Most contemporary managers try to build strong networks of friendships in various facets of the music industry, then trade favours with these friends so as to advance the careers of their artists. They constantly spread good news around to motivate other members of the artist's team to work even harder, and they create detailed and plausible plans, and work hard to make sure everyone sticks to them.”

One of the key points John is making here is the need for an artist to have a highly energised team around them, like spokes on a wheel, with the manager and artist at its hub. It's this team – this co-ordinated effort – that does the networking. Without this mechanism in place to focus and drive your band's agenda, any networking you may do will be at the mercy of the elements, and mostly produce little in the way of career advancement.

Unfortunately, these days, too many artists have become convinced that networking has replaced the need for a manager, and that the Internet is just a goldmine waiting to be tapped. On the contrary, the complexity of the digital landscape makes the management role more crucial than ever. As the interconnectedness of our world grows exponentially, so too does the need for someone to navigate the way forward through this maze on behalf of the artist.

Networking Means What Exactly?

Like the term management, networking means different things to different people. In the music industry, artists often fall into the trap of believing that a network is a web of random links – people you met at a gig, friends of your producer, fans, that venue owner your brother knows, being Facebook friends with well known industry names – and that once this network grows large enough, superficial though it may be, it will somehow reach critical mass and suddenly you'll be signed to a huge label. After that, life will be sweet.

But your network isn't active unless you

are. It won't contact you if you sit there on your hands waiting. You've got to use that network to your advantage by working it hard, preferably with a manager who can help co-ordinate the attack. Without a huge push from you, the phone won't ring and the messages won't chime. Networks are the conduit between the music industry, your fan base, the media and your organisation. They're not the machine itself – networks represent no-one.

The crucial thing to know about networking – as a band or solo artist – is that making contacts isn't enough. It's where the job begins rather than ends. This is where having a manager who can rally the troops (if you or they have any) really makes a difference. Leads are pursued, contacts forged into working relationships – in short, the network is made to serve you. This is crucial to understand because your network never offers a hand out or free ride, you have to get out there and push it... hard!

Starting Small

The problem with getting a manager of course, let alone a team of troops to network in a co-ordinated, strategic way, starts right at the beginning of your career. Who do you get, how could you possibly afford to pay them, and how would you know if the one you choose is any good at their job? Moreover, how do you not end up employing someone who's more interested in his or her own bank balance than yours?

Well, the first things to learn about a manager is that they work for you to earn themselves a living, and they are always – like everyone else – mostly interested in their own bank balance. Take that as a given, not a failing. If you can accept early on that it's okay for someone to earn money from the work you do, then you're on the right track. Unfortunately, too many artists try to go it alone out of some misguided delusion that anyone around them making money off the back of their creative genius must be a leech with mal-intent. This thinking will start you down the path to a small career in the music industry, or no career at all.

The right manager, who will support you when you need support, and who can build a team around you to maximise your career, is the best form of network solution going around. The more you pay them the more loyal they will become.

Two final thoughts... 1: if you sit passively, waiting for a stampede to your door, all you will see and hear will be people driving past. 2: John Watson emailed me today and made this comment: “My advice to any artist starting out these days is that you should focus 95% of your energies on the audience and only 5% of your energies on the industry.”

by Jenny Barrett

NEW ZEALAND 2019:

Industry insiders predict growth but are plagued by skills shortages

Every sector of the industry is oozing with optimism when asked about 2019. It seems the only issue is where to find the men and women who are actually going to pull all these projects together. Staff recruitment and retention are topping the list of challenges as we head into the new year.

Production & Hire

Andre Goldsmith, Managing Director, Hang Up Entertainment Services

Opportunities abound for Andre Goldsmith in Christchurch, so much so we've let him have three...

1. Venues coming onstream post-earthquake

"After the earthquakes, all Christchurch's AV companies have done what they can to survive. None have gone under, but it has been subsistence trading really for the last few years. Now it feels like we are coming out the other side. The inner city is getting a bit of a buzz with more people out and about. After seven years of doom and gloom, I think the outlook is very positive. The Town Hall re-opens for business on 1st March, so we'll be supplying the Town Hall again and that's another space for people to use so there will be more bookings for events. We can also start to see progress on the Convention Centre. It is still a good eighteen months away but just being able to see the structure is a positive thing for Christchurch. We are a few years' away from the stadium, with a bit of luck, but conversations are starting and I'm personally working hard on that. I want to make sure that there is input from the 'hands on' people and share the lessons learned on the Theatre Royal rebuild."

2. New industry qualifications rolling out

"The new qualifications for the industry are now in place and are about to be rolled out. This is a serious opportunity, a chance for the more professional companies to be able to show clients that they know their stuff and will protect the audience, staff and workers. We've lagged behind Australia and the rest of the world on the compliance and competency baton, so now is our chance. It is also an opening for qualified employees to earn a little bit more."

3. Increasing awareness of mental health issues

"There has recently been more acknowledgement of the issues of suicide, depression and substance abuse within the industry, particularly amongst casual staff. In some ways the production and hire companies are the 'other social service'. We try and offer some regular employment for this itinerant workforce that is actually at the heart of the concert industry. We'll run the Roady for Roadies again here in Christchurch but maybe it is time for more discussion around what else we can all do. At Hang Up, we are at the end of the phone, providing work that can be a starting point for staying straight. One of our loaders stayed clean for months and now works for an Outreach Programme for the Salvation Army and plucks people out of there and sends them to us. It works on both sides as he's vetting them for us so that we don't put our people and clients at risk, and we are giving them a chance. We've recognised that there's a group of people that we as an industry need to do more for and we need to continue that conversation."

The Challenge for 2019: The skills shortage

"Good staff are hard to find. You've got to be quick – someone dropped his CV off and I texted him just as he was walking into the next building offering him a job! We're busy creating a team of full-time highly skilled self-starters, rather than relying on the expertise of our casuals, to try and counter the skills shortage. It will be interesting to see how they will staff the Town Hall and the Convention Centre. Really the skills shortage is a challenge that isn't going to be fixed in 2019. It is New Zealand-wide, not just in Christchurch, and across many sectors. Successive governments have failed to address the issue and in my opinion the current generation don't want to spend time learning a trade from an older person. They

want to be in charge and earn the maximum they can immediately, and not start at the bottom, working hard. New Zealand has had the luxury of an industry well-served with experience, but change is coming."

Visual

The Opportunity for 2019: more music and smarter technology equals more creative show design



Hamish Edh, Managing Director, TomTom Productions

"We are optimistic. It is going to be a busy year for the lower South Island with a lot more music happening in Queenstown and Dunedin. We've worked alongside Rhythm and Alps to get them on their feet, often just breaking even and experimenting with new stuff. Now that is paying dividends and they are bringing Fat Boy Slim and we've got Fat Freddy's Drop and Kimbra coming up. We're working with Live Nation at the Forsyth-Barr Stadium in Dunedin. I think we're finally coming out of the 2007-8 global financial crisis. Back then there were cranes everywhere and it all ground to a halt. Now there's a dozen or so cranes on the Queenstown horizon and it feels like things are happening. We're swamped with work so can focus on the bigger show design and enjoy exploring the advances around laser and LED technology and the new creative possibilities that are opening up. We'll be getting some new exciting toys, I've just got to decide what makes business sense and what's a heart thing!"

The Challenge for 2019: Managing Retention

"In terms of retention, it's the same across the country, our young people get to a certain point and then they want to go overseas to further their careers. We're just trying to embrace it and use our networks to help them find a job, hoping that creates a sense of loyalty. Perhaps the recent growth that we are seeing and the bigger international acts that are coming to New Zealand will encourage

more people to stay because they can grow and develop here rather than having to go abroad. Then there's those that just want to take time out and travel for a bit. Ours is an anti-social business working 12-16 hour days so its good for them to go away and get some work/life balance and we are trying to support that. Admittedly I'm still working out how exactly to manage what that throws up, like having no ops manager for three months! We might be looking for a few good people..."

Lighting

The Opportunity for 2019: increased awareness of the value of lighting design



Kevin Cawley, Lighting Designer

"I think 2019 will see an increase in awareness of the importance of including a lighting designer on a project. The commercial sector is finally valuing what we do as lighting designers and recognising that they need to involve specialists. Architects and construction companies are acknowledging that it isn't just about putting a downlight in the middle of the room anymore. Lighting designers can take the ordinary and make it extraordinary. Lighting technology is more affordable, more flexible, easier to bend, shape and adjust. People in the theatre understand the power of tuning the correct colour temperature. Now word is spreading to other sectors about the importance of controlling a light source's colour temperature output. These days I'm taking a 'tunable white' kit with me that demonstrates the colour temperature of light, measured in degrees Kelvin. It shows people what white LEDs created anywhere between 2700K to 6000K will look like to the human eye. I'm doing some Heritage NZ projects in churches and so on where the colour temperature can be tailored to certain fittings and the ambience required for different occasions. The potential is huge. I'm involved with apartments in Dunedin, retail spaces in Central Otago, heritage work nationally and even street lighting now that there is greater awareness of the issue of light spill."

The Challenge for 2019: availability of contract personnel

"The contractors that I call upon make or break what I do. The engineers, technicians, design personnel and installers need a certain skill set and a passion. My challenge for all

these projects is gathering that team and it is becoming more and more difficult to find people with availability. I'm set to continue to do a lot of teaching at Massey this year to do my bit to spread the word and educate people about light but in the short term finding the right people is my greatest challenge."

Integration

Brendon Reid, Managing Director, Automation Associates

The Opportunity for 2019: take a look at the Auckland skyline...

"There is a tonne of work out there, look at the Auckland skyline right now. It hasn't looked like that since 1987. Just because the market is flooded with low level operators touting low level product, it doesn't mean the end user will shop at the bottom of the barrel. We just have to be slicker at communicating the value of what we are doing. Do a good job and provide great service, then provide it over and over again with recurring service models like Domotz. It's out there - go get it!"

The Challenge for 2019: a world without intermediaries

"I had the term disintermediation explained to me 10 years ago by Rich Green, my favourite AV industry visionary. He explained it as 'the manufacturer skipping the distributor and integrator and selling direct to the consumer'. Fast forward 10 years and that forecast is 100% correct. Google, Amazon, Facebook and Apple (GAFA) are leading the disintermediation charge. Lighting control is now something you can buy in a box from Google. Access control is something you can buy online from Amazon. The age of DIY installation is here, and while the upper level clients don't have the time or inclination to get involved, there are a hundreds of sparkies who will take a GAFA product and do it for them. Following on from this, our willingness to grab something from GAFA or Ali Express has put pressure on the distributors, so we are seeing situations where more and more products are not in stock and lead times are in the weeks now for most items. Lastly, gone are the days where we were advised of a product going end of life in 6 months' time, with support extending for another few years. Just this week I was told that a product 3 months out of warranty was no longer supported and tech support were not even prepared to speak to us about it. 'Buy a new one' they said. Wow."

Theatre

James Wilson, Baycourt Community & Arts Centre Manager

The Opportunity for 2019: more overseas art companies touring nationally

"I think the future is really bright for theatre nationally. We are really starting to believe in ourselves. A lot of art companies used to just do Auckland and Wellington seasons, but now they are touring. Overseas promoters are looking at our touring circuit and thinking

the work has been done." He puts the credit for this firmly at the door of Creative NZ, "They have made a significant investment in developing a sustainable touring network in New Zealand by appointing and backing Tour-Makers National Touring Agency. Whilst Tour-Makers focus is on supporting New Zealand theatre, music and dance, their work on marketing and audience development, tour development and negotiation with venues and festivals has been key in creating a strong circuit that appeals to companies overseas."

The Challenge for 2019: staff shortages

"We have a great production management team but keeping staff is a challenge for us, and all theatres. Dale Henderson our Production Manager is heavily involved with Skills Active and the efforts to recognise and accredit people's practical experience. We try and support that kind of apprenticeship approach here and train up our casuals. That said, we find people gravitate to Auckland or Wellington, and get tempted by the work available overseas. We just have to watch them go, and then hope that they come back. One of our team is on tour with the Russian Royal Ballet. He'll be learning a huge amount and we just hope that by offering staff the flexibility to enable them to take these opportunities, that it will foster loyalty and we'll reap the benefit of their broadened experience."

James adds that these staff shortages are nothing new but 2019 might bring further challenges, "I recently attended an EVANZ (Entertainment Venues Association of New Zealand) presentation on the new national conference centre with its 3,000 seat theatre. Where are they going to find all the technical staff? If they are taken out of the general pool, then things are going to get even tighter in Auckland, and the regions."

Music/Festivals

Pato Álvarez, Managing Director, Pato Entertainment

Opportunity for 2019: more artists wanting to tour New Zealand

As with NZ theatre, Pato is finding it easier to attract overseas artists to New Zealand with a line up this year including Bryan Adams, Slayer, Sonorous, The Prodigy, TOTO and Jefferson Starship, Sticky Fingers, Blindspot and Devilskin plus festivals Bay Dreams, One Love, the Disco Summer Series and Soundsplash. "The industry looks positive to me. There is a lot of new talent and people are supporting all our events and buying tickets."

Challenge for 2019: managing expansion

There's nothing negative on Pato's radar, with his challenge being expansion overseas, "The global economy can always be a threat, other than that we can't see any upcoming issues. We have been working hard and keeping our foundation and team in New Zealand strong. This means we can start looking at expanding our business ventures overseas."

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Kate McKenzie & Julius Grafton

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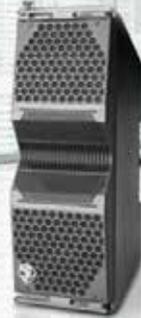


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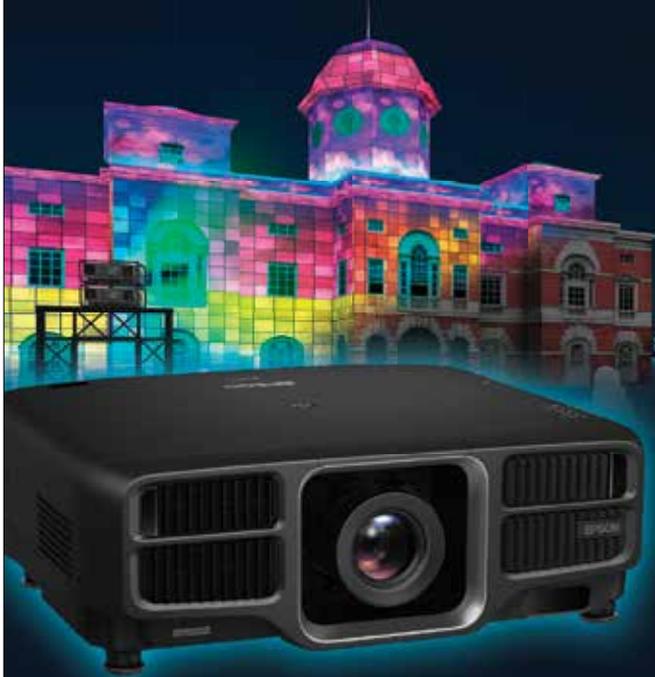


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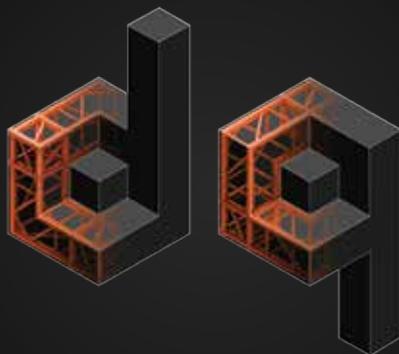
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ANCIENT TIMES

Bigger and better. With drugs.

By Julius Grafton. A random series from a 1970s veteran.

Photo by frankie cordoba on Unsplash

I started my career in 1973 as a lightshow kid. Back then bands carried column PAs but never lights. Most bands had one roadie driving a small van like a Ford Transit or a Kombi. They could be set up and playing in as little as 30 minutes, and often did a double (two shows a night) or even a triple.

Promoters hired a lightshow, or relied on the venue lighting which generally didn't exist in civic halls, or at school dances. A fixed venue like Chequers, Whisky au Go Go or Berties would have a house lighting system of sorts. Often the lights were more about mood than actually lighting the band.

With the advent of colour TV and the more

'theatrical' bands like Queen and Skyhooks, stage lighting became essential along with follow spots. Bands started to carry lights, so concert lighting emerged and since then, that industry has not stood still.

By the mid 1970s bands were carrying horn loaded PA systems with mixing consoles at the end of a multicore, and the procedures settled

down into a more laborious process of setup and loadout. The single crew model gave way to three crew – sound, lights and stage – and towards the 80s grew larger to include stage monitors, and a second lighting tech.

Everyone generally set up and pulled down the same way, since deviating was less efficient. Touring production for bands in the golden era of Australian rock music tended to scale up from the three crew, three tonner minimum to an occasional 40' semi at the top end. Mostly the charting bands like Chisels, Angels, Misex, Oils, Hunters would all run an eight or twelve tonner with six crew.

The funny thing about everyone hauling all that gear everywhere was that no two venues were uniform, so the first part of the loadin was always spent mapping out what would go where. Some of the venues were new to the boom days of touring bands and would



try to impose on crew as to what could – and couldn't – go here or there.

As soon as a venue settled into the new era, enjoyed the rivers of cash from a hit band and suffered the losses of an agency stitch-up, they would usually leave the crew alone for setup. A duty manager trying to tell a tired, agitated, often wired-up crew what to do would often end in shouting.

Setting up shows went from 30 minutes back when it was a column PA, and got progressively longer as the production multiplied. Once a horn loaded PA arrived, you'd need at least 90 minutes to get it together. Adding on lights, at least two hours. The most economical and basic touring system of 1980 – a single 4 way PA with 2 sends of stage monitors (sent from the FOH desk), 24 lights, a drum riser, drapes, backline all arriving in a 2 ton truck would take two or

three crew about three hours to get ready.

As we added complexity, we added crew. I think most crew worked at a fairly cracking pace. There were some stoner outfits that slipped off for a mid-afternoon bong, and they were different to an efficient crew that sometimes smoked a reefer once everything was set.

At the other end of the spectrum were the amphetamine dudes who were usually rake thin and running around in shorts and no shirt, no matter the weather. They were notable by body odour, and once again you could find an entire crew of like-minded stupidity. Typically, the human turnover was very high, because powder only works if you have a nice tidy two-day dreg break when you need it. Gig calendars never jived with that!

Anyone who knows me knows I detest drugs, and also knows I love a drink. These are

broadly contradictory, but we have to accept the rules of the society in which we live. A while ago we were talking with a classic working rock band, The Radiators, who came to my former production college to play. Singer Brian Nichol said that they had a unique profession, in that they were required to drink. In fact, venue managers **INSISTED** they partake. And indeed, every performing act of any commercial stature has 'a rider'.

Thus it was that my truck would roll up to your local, and upon unloading we would be met by (at worst) a couple of jugs of coke/ice and water. If our band was 'famous' or known to TV, 'the rider' would appear in an ice tub out in the dressing room. We usually had a deal with the band that the crew would have a straight slab. Which is where a lot of us got a pretty enjoyable beer habit.

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LED Mapping using the LED Blade CRE:ON controller

presented by TLC – The Lighting Collective

LED Blade's new CRE:ON controllers are extremely easy to configure and can be used via direct RGB control from a lighting console, or be pixel mapped and processed through a media server. In this article, we will go through the steps of how to connect your CRE:ON controllers to a lighting console and media server.

CRE:ON is a networked device that operates over Art-Net and sACN protocols. It is a power supply and a digital led strip controller in one, which can control up to 1000 RGB pixels all in one compact design and has an IP33 rating when the front panel is facing down. The CREON takes an input signal of either Art-Net or sACN and converts it to SPI protocol in order to address and control the LED Blade strips.

Network hardware

To have a stable network, using high quality cable and connectors is a must. Networks can be easily brought down by as little as a broken clip off a cheap plastic RJ45 connector. That cheap blue CAT5 cable you can get from your local hardware store might work at first but won't cut it for the rigours of the touring market. It's designed to be pulled through a wall and left there.

Network switches are hugely important. Not only do they provide a space to tap into your network signal, they buffer all that digital information together and provide clear packets of data to be sent. Network issues can sometimes be solved by putting a switch in line to clear up the signal.

IP ranges

Art-Net and sACN networks have standard IP ranges of 2.0.0.x and 10.0.0.x. Your lighting console and CRE:ON controller must be in the same range. Be sure that no other devices are sharing the same IP address as that will cause a conflict and your network will most likely not work.

There are three methods of data casting

- Broadcast – one device sending all packets of data to all devices
- Unicast – one device sending specific packets of data to one device
- Multicast – one device sending many packets of data to many devices

When it comes to large pixelmaps, it is recommended that you Unicast to your devices to prevent any network lag. This will be achieved from your lighting console/media server.

Art-Net universe addressing

Addressing Art-Net universes can be confusing as the first valid address is 0 and only 16 DMX universes can be sent down one subnet. See the below table for Art-Net universe settings.

Thankfully LED Blade has simplified this process by being able to broadcast the subnet and only needing to address the universe number which will be one number lower than your actual DMX universe. DMX universe 17 would look like 0-16 on the CRE:ON unit.

Art-Net subnet universe settings table

DMX universe	Subnet setting						
1.	0-0	17.	1-0	33.	2-0	49.	3-0
2.	0-1	18.	1-1	34.	2-1	50.	3-1
3.	0-2	19.	1-2	35.	2-2	51.	3-2
4.	0-3	20.	1-3	36.	2-3	52.	3-3
5.	0-4	21.	1-4	37.	2-4	53.	3-4
6.	0-5	22.	1-5	38.	2-5	54.	3-5
7.	0-6	23.	1-6	39.	2-6	55.	3-6
8.	0-7	24.	1-7	40.	2-7	56.	3-7
9.	0-8	25.	1-8	41.	2-8	57.	3-8
10.	0-9	26.	1-9	42.	2-9	58.	3-9
11.	0-10	27.	1-10	43.	2-10	59.	3-10
12.	0-11	28.	1-11	44.	2-11	60.	3-11
13.	0-12	29.	1-12	45.	2-12	61.	3-12
14.	0-13	30.	1-13	46.	2-13	62.	3-13
15.	0-14	31.	1-14	47.	2-14	63.	3-14
16.	0-15	32.	1-15	48.	2-15	64.	3-15

CRE:ON Art-Net settings table

DMX universe	Subnet setting						
1.	0-0	17.	0-16	33.	0-32	49.	0-48
2.	0-1	18.	0-17	34.	0-33	50.	0-49
3.	0-2	19.	0-18	35.	0-34	51.	0-50
4.	0-3	20.	0-19	36.	0-35	52.	0-51
5.	0-4	21.	0-20	37.	0-36	53.	0-52
6.	0-5	22.	0-21	38.	0-37	54.	0-53
7.	0-6	23.	0-22	39.	0-38	55.	0-54
8.	0-7	24.	0-23	40.	0-39	56.	0-55
9.	0-8	25.	0-24	41.	0-40	57.	0-56
10.	0-9	26.	0-25	42.	0-41	58.	0-57
11.	0-10	27.	0-26	43.	0-42	59.	0-58
12.	0-11	28.	0-27	44.	0-43	60.	0-59
13.	0-12	29.	0-28	45.	0-44	61.	0-60
14.	0-13	30.	0-29	46.	0-45	62.	0-61
15.	0-14	31.	0-30	47.	0-46	63.	0-62
16.	0-15	32.	0-31	48.	0-47	64.	0-63

sACN addressing settings table

DMX universe	Hi uni Lo uni						
1.	0-1	256.	1-1	512.	2-1	768.	3-1
2.	0-2	257.	1-2	513.	2-2	769.	3-2
3.	0-3	258.	1-3	514.	2-3	770.	3-3
4.	0-4	259.	1-4	515.	2-4	771.	3-4
5.	0-5	260.	1-5	516.	2-5	772.	3-5
6.	0-6	261.	1-6	517.	2-6	773.	3-6
7.	0-7	262.	1-7	518.	2-7	774.	3-7
8.	0-8	263.	1-8	595.	2-8	775.	3-8
9.	0-9	264.	1-9	560.	2-9	776.	3-9
10.	0-10	265.	1-10	561.	2-10	778.	3-10

sACN universe addressing

Addressing sACN universes are much easier than Art-Net in which the first valid address is 1 and can carry up to 255 universes before needing to change your Hi/Lo(start/end) universes. For example, a starting universe of 6 would be Hi 0/ Lo 6 (0-6) for the CRE:ON.

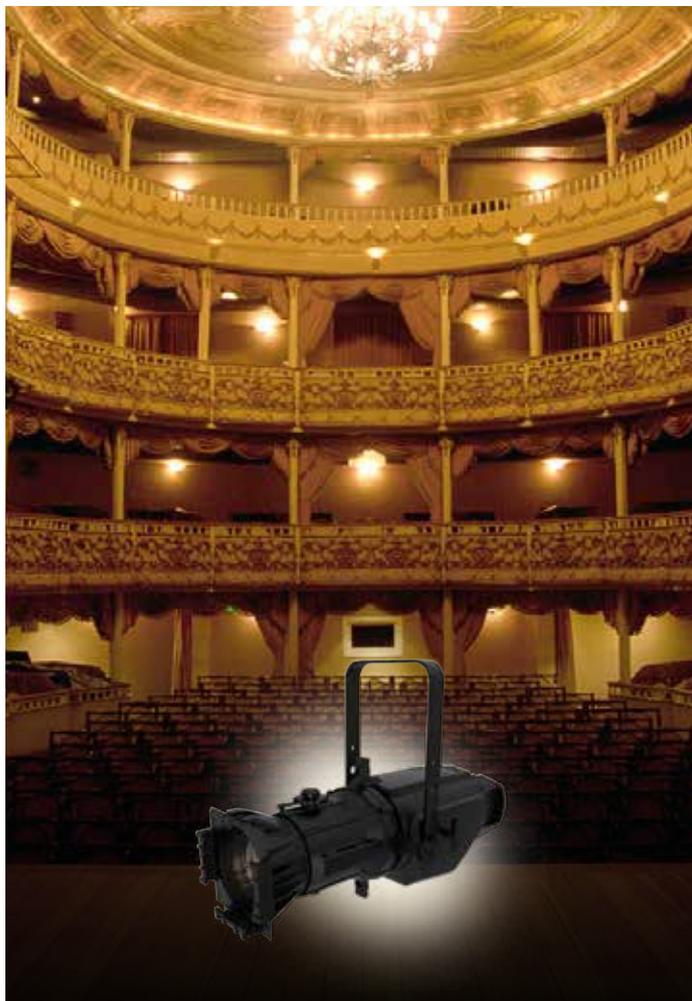
Setting up CRE:ON as direct RGB out of a lighting console

Let's say you have one CRE:ON controller with 1000 pixels, and you want to control it directly from a lighting console without pixel mapping starting at universe 6 via Art-Net.



- Consecutively patch 1000 x RGB fixtures starting from DMX 1 at universe 6.

- Connect the console and CRE:ON together via high quality cat6e cable, depending on cable lengths, a network switch may be needed.
- Check that the console and CRE:ON is in the same range of either 2.0.0.x or 10.0.0.x and that Art-Net /sACN is turned on and the desired RGB patched universes are UNICASTED to the CRE:ON's IP address.
- To address the CRE:ON's starting universe, select the settings icon in the top corner of the CRE:ON's touch screen, then enter the network menu.



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- For Art-Net, your net – sub uni address will be 0-5
- For sACN, your Hi – Lo uni will be 0-6
- Save the settings by selecting the tick symbol
- Select the home icon to take you back to the CRE:ON's home screen where you will see your updated settings displayed.

You will now have control over your LED Blade strips.

Setting up CRE:ON as a pixel mapped device

Pixel mapping is a way to control a large array of fixtures and sending video content to them. Most lighting consoles available now have this ability built in but do have their limitations. A more simple method for large arrays is to use a media server. Patching a media server requires you to assign each fixture an X(horizontal axis), Y(vertical axis) and Z(depth for 3d) positions. Once you are happy with the layout of your pixels, you can start to address them.

Many media servers have their own specific ways on how to create a pixelmap and any user should know how to do so on the product they choose. I'm going to explain how to do so on MADRIX3 but the idea is similar across the board for media servers.

The two important things to remember is 1. UNICAST the desired universes to the desired CRE:ON's IP and 2. The Led blade strips are addressed consecutively by the CRE:ON unit.

The setup I will be using will be 2 x CRE:ON with 10 x Ledblade strips each equalling 1000 pixels per CRE:ON unit. I will be using Art-Net and will be using universe 6 as my starting universe. My pixelmap will be quite simple by making a 100 x 20 grid (20 x LED Blade strips horizontal)

- Begin by setting up your network, remember the ranges to use are either 2.0.0.x or 10.0.0.x I will be using the 2.0.0.x range by assigning my PC that is running MADRIX to an IP address of 2.0.0.3 with a subnet mask of 255.0.0.0. Using a subnet mask of 255.0.0.0 makes the CRE:ON discoverable in a network.



- I'm going to keep it simple and assign CRE:ON #1 an IP of 2.0.0.1, because I will be using Art-Net, the subnet universe address will be 0-5.
- CRE:ON #2 will be addressed at 2.0.0.2, because 1000 RGB pixels take up 5.8 universes, the starting universe will be 12. The subnet settings for this CRE:ON will be 0-11.
- Connect your media server and CRE:ON controllers together with high quality CAT6e cable. Depending on your setup and cable length a switch might be needed.
- Open MADRIX3 and enter the device manager window.
- Select the Art-Net tab in the device manager window and click the magnifying glass icon in the bottom left corner to search for devices.



- The CRE:ON units will automatically be detected with the correct universes assigned.
- Each CRE:ON should be in 'direct IP mode' (UNICAST).

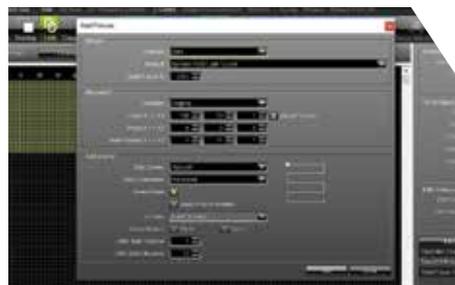


- Next select the DMX devices tab, and enable each CRE:ON unit to begin output.
- Now open the patch editor where we will create the pixelmap.
- Patch each CRE:ON individually.
- Open the add fixtures tab, select the generic RGB 1 pixel library.
- Our count will be X=100 Y=10 Z=1



- Next, we need to select the direction of assignment. These strips will be running horizontally.
- The CRE:ON sends addresses consecutively and by selecting snake mode will allow the pixelmap to also do this.
- Set the starting universe at 6 and starting address at 1 and add.
- To patch CRE:ON #2 we need to change the starting position to X = 1 Y = 11 Z=1 this will drop the next 1000 pixels to sit underneath our first 1000 pixels.
- Change the starting universe address to 12 and add.

You will now have control of your LED Blade strips.



Have you ever arrived at a load in where there's no plots, equipment lists or even a general plan of what is needed? All these things are needed for a successful and efficient show. The same goes with pixel mapping and networking. The key to a successful pixelmap is planning and to understand networking.

Some key tips are:

- Draw up a network plan of your system and include as much information as you can, IP addresses/starting DMX addresses
- Use high quality hardware and cable
- Be sure that all network hardware is not sharing the same IP address
- Decide whether to broadcast or unicast to your devices

“Draw up a network plan with the location of your devices and include their IP and universe settings. This way you have a visual reference to work out what will be needed before you arrive at load in and I cannot stress how much this helps when you are trouble shooting.”

Get the Best out of Your Zero 88 FLX S Lighting Console

presented by Clearlight Shows

Recognising that programming time continues to become ever-tighter and more precious, Zero 88 has streamlined key elements of FLX S to assist with all the prep work, getting the user ready to operate even quicker. "RigSync" keeps FLX S fully synchronised with the lighting rig, without any need for the user to understand DMX or even think about patching. "Guidance" helps the user through key features of the console, allowing them to learn and refresh their skills at their own pace.

Colour is at the core of the operating architecture, providing quick and accurate control of colour changing fixtures via the four encoder wheels and the 7" multi-touch display - offering Zero 88's award winning colour & image picking interfaces and access to "Mood Boards by LEE Filters".

Free apps for iOS and Android are an integral part of the overall FLX S package. Tablets act as wireless touchscreen monitors, while smart phones act as remotes, providing wireless control of the rig and allowing the user to manipulate, control and playback their shows. Apple Watch users can also benefit from using their device as a focus tool.

The FLX S consoles can be networked and one of our recent sales to a large college allowed the AV department to control the consoles in several venues all from the AV office.

The FLX S console is an ideal console where the skill sets of multiple users can be used to their full potential. Power users can utilise the complex feature set the console has on offer while the novice can hone their skills with an intuitive and easy to understand operating system.

We will take you through the steps of a few of these features so that you can get a great performance out of the Zero 88 FLX S console at any skill level.

Feature: Connect apps to your FLX S console

ZerOS consoles have the ability to be remotely controlled by Windows PCs, iPhones, iPads, and Android devices. We will outline the steps for connecting an Apple (iOS) device.

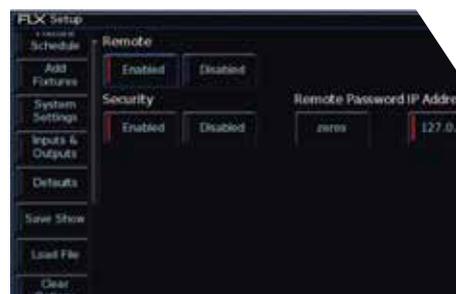
1. Plug a wireless router into the Ethernet port of your console using a standard CAT5/5e patch cable. Ensure you plug the CAT5/5e cable into one of the Ethernet ports of the router.

WARNING- Do not connect the console's remote router to the Internet. Connecting your console to the Internet could reduce the stability of your console.

2. Download the ZerOS remote app for iPhone/iPad in the iTunes store, and connect your device to your wireless router.

Tap the Settings app -> Wi-Fi -> Choose the Wireless router from the list of available networks. You will then need to enter your router's password (Network Key), usually listed on the bottom of the router.

3. To enable your Remote on the console, tap SETUP, and scroll down the tabs on the left-hand side until you get to Remote. Tap



Remote, and then tap Enable:

4. By default, security will be enabled. The Remote Password can be changed, or disabled. The console will also be set to use DHCP (Dynamic Host Configuration Protocol). This means the router will assign the console and remote device an IP address automatically. If you wish to input a static IP address, disable DHCP and manually enter a static IP address.
5. When you have connected your device to the router and enabled the Remote on the

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console, open the ZerOS remote app on your device. Your console should appear in the list in the format: Desk Name, followed by your console's serial number.

6. Select your console and it will ask you to enter a password. By default, this is "zeros" however you can change this on the console or disable the password.
7. When you are connected and logged in you will be presented with a Syntax pad that you can use to control your console. The bottom bar allows you to select different windows to view and control from the app.

Great, you connected your iOS device to your FLX S console!

Feature: using the range of Colour features in the FLX S touch screen

1. Push up the channel faders of the lights you want to select colours for. Doing this will open several tabs on the top of the touch screen to allow you to control your lights. That's because channels are automatically selected when you push their faders up. You can change your selection manually at any time by using the channel select buttons under the faders.
2. The 'colour palettes' tab will show you automatically created colours for your lights. The palettes highlighted in blue are for your currently selected fixtures. You can



choose and apply these colour filters to your selected fixtures by simply tapping them.

3. The 'colour picker' tab allows you to choose a single colour or a range of colours from the colour picker screen. Either tap anywhere in the colour scale to choose a single colour or tap and hold your index finger on the screen and drag your thumb across the scale to choose a range of colour to spread across your light fixtures.
4. Remaining in the 'colour picker' tab, on the left-hand side of the screen you will see pre-loaded images that you can select, to quickly load a colour palette across your fixtures.
5. Below the pre-loaded images is a plus symbol, when you press that you can

upload your own images (via USB) into the console to form the basis of a colour palette selection.

6. You can click on the 'mood boards by LEE filters' tab, this will take you to a screen of pre-loaded colour configurations. These colours have been selected for their ability



to work well together on the stage, making the planning process stress-free and easy for any skill level.

Fantastic! You now have a handle on colour control for your fixtures.

Clearlight Shows is the distributor for the FLX S console in Australia. They also offer training on their full range of products.

Enquire today to learn more about the Zero 88 FLXs console. www.clearlight.com.au

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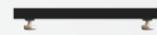
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Anatole Day is a FOH and monitor engineer entering his 20th year in the game. He graduated Sydney's Australian Institute of Music back in 1998 and went into studio recording. He soon discovered the rich vein of work in the world of live sound engineering, and never looked back. Amongst other big name acts, Anatole is well-known for his decade of work mixing FOH for Guy Sebastian.

BOSE SHOWMATCH

by Anatole Day

Bose Professional ShowMatch array loudspeakers feature replaceable waveguides that allow changing coverage and asymmetrical patterns, in compact enclosures optimised for both installation and portable applications.

DeltaQ Array Technology improves sound quality and vocal clarity by allowing directivity, or "Q," to vary with each array module, directing more sound to the audience and less to walls and floors.

Available with 5, 10, or 20 degree vertical coverage, array modules provide versatility forming conventional (J-Array and constant-curvature) or DeltaQ arrays. Conventional line arrays can require up to twice the box count compared to DeltaQ arrays to achieve comparable vertical coverage. DeltaQ arrays can improve sight lines, reduce rigging weight, and lower system costs.

Replaceable waveguides allow changing horizontal coverage to best match audience coverage needs and can form asymmetrical patterns for improved acoustic performance in left/right arrays.

145 dB peak array output levels generated from proprietary 2x8" neodymium woofers and 4x EMB2S neodymium compression drivers, with more usable low-frequency output in smaller arrays.

Compact, portable enclosure with removable "side guards" optimise design for both installation and portable applications, from small clubs and houses of worship, to the largest performing arts centres and amphitheatres.

Matching-width 1x18" subwoofer and complete rigging accessories are also available.

REVIEW

In The Real World

I've had the opportunity to use Bose's ShowMatch array in various applications, with different combinations of amps and processing. I've taken the rig out to do corporate events, on a regional tour with Guy Sebastian, used it at the Queensland Music Awards, and deployed it in venues of many shapes and sizes.

Often, the first thing you do when you walk into a room on a tour is compromise. In a lot of proscenium arch venues, accommodating

flying PA has been very much an afterthought. Most often, you'll find you don't have much room and you're much too close to the proscenium. Because ShowMatch's mid-highs are quite small, it's made dealing with this easier. In the regional venues where this was an ongoing issue, I was touring three SM5s (5 degree vertical dispersion), two SM10s (10 degree vertical dispersion) and one SM20 (20 degree vertical dispersion) per side, augmented by four SMS118 subs. I also had some extra SM20s to run as front fill if necessary.

Where these dispersion options came in the most useful on the Guy Sebastian tour was at Newcastle's Civic Theatre; it's a tricky room. Most line arrays are designed to be flown, and most can be ground stacked, but it's not always ideal. At The Civic, ShowMatch had to be ground stacked. The Civic's stalls hold about 100 and the balcony just under 800. If you fly at the Civic, you can't cover the back of the stalls. If you ground stack, you can't cover the back of the balcony. In an ideal world, you want to do both, so I did, but not physically.

Because I had ShowMatch boxes with 5, 10 and 20 degrees vertical dispersion, I built a ground stack with a 5, 10, and a 20, followed by another 5, 10, and 20 to effectively give me two small arrays. I could focus the top three at the balcony and the bottom three at the stalls. It worked really well, and it's great to know that ShowMatch has the versatility to deal with difficult rooms.

The Queensland Music Awards were a different challenge; the room was a long rectangle which we had to throw across, not down. Instead of two big left-right hangs, we ran four hangs of two subs and four mid-highs each. Using the Bose's Delta Q system (see next paragraph), we opened up the waveguides wide, with the bottom two boxes at 120 degrees. It covered the room really well, and we didn't need front fill at all. The customer was very happy, and the QMAs have asked for ShowMatch to come back for the next awards night in April.

Changing Q

ShowMatch, like Bose's RoomMatch, uses their DeltaQ waveguide system, meaning you can manually change waveguides to get the coverage you need. There are 70, 90, 100,



and 120 degree horizontal dispersion options. You can make your dispersion asymmetrical if you want; for example, a theatre set-up in a rectangular room with your hangs in the corners could run 70 degrees on the outside to steer energy off the wall, then you could open up the angles as you go down the array. That way, you're only pushing energy to where people are seated. I'd like to see the waveguide replacement redesigned as a quick release, but as it is at the moment, it's just a half-dozen screws off the grill and a couple in the box, so it's not a big deal to do in prep at the warehouse.

Amps and Processing

After the early days of recommending their own amps, Bose Professional are now recommending you run ShowMatch on Powersoft X4s, and use their Armonia control, monitoring, and processing software. A Powersoft X8 will give you enough power to run a whole rig off of one amp, but Bose have found that system techs don't like putting all their eggs in the one basket. That being said, I ran X8s at the QMAs.

In terms of EQing ShowMatch, I've never needed much – I've just done what the processing said after modelling, and made a couple of tiny tweaks on my console, which amounted to a 2 or 3 dB cut on two frequencies. Mostly that's just me; I hate 250 Hz, 400 Hz, and 4 kHz, and I intuitively notch them down a bit, though most people who mix on systems I've tuned tend to agree with what I've done. I've always found at gigs that processing is minimal, as ShowMatch is a PA you don't have to do much to.

Prediction and Processing

I find Bose's Modeler software quite intuitive. You just punch in your stage and where your hangs are. If you have measurements of the venue, input your length and height, or if you have CAD, you can import that. From there, you can adjust your angles, re-measure, and repeat until you find the best coverage. Effectively, it's very much the same as most other software modellers. I've found that its predictions measure up with reality, so it makes a great starting point. However, I'm a firm believer that if it doesn't look right, it probably isn't right.

After you've got your rig to where you want it to be in Modeler, there are active EQ presets for the Bose ShowMatch available within Armonia. I find the Smaart integration in Armonia really useful, as well as being able to monitor impedance and load in real-time through the gig.

Handling and Rigging

The thing I like about rigging ShowMatch is that it's not reinventing the wheel. There are front pins and back pick-up. When you ground stack, there's an adapter that sits on the subs. Everything you need is on the box – which means no lost pins. The SM10s and SM20s are fixed in their angle, so there's no settings to adjust. The SM5s can be set

from 0 to 5. Two people can set up a decent hang in half an hour. It's quick and easy, and ground stacking is similarly low-hassle.

Sonic Characteristics

ShowMatch's response is pretty smooth and even across the board. Frequency response stays even when adding up to eight tops, and the tonality translates well as you scale up, which is worth noting as I've noticed that some arrays change tonality noticeably as you increase the element count.

Some PAs sound great thumping away but change at low volumes, while others don't 'kick in' until you run them louder. From low volume all the way up to big show levels, ShowMatch is smooth and there's no audible transition. It think its works to its advantage that the mid-high's crossover point is out of the way of most of the vocal range – it's down around 600 to 800 Hz, and the designers worked pretty hard to make that work, which gives the system its smoothness.

The subs are tight, small, and manageable, though I would like to see Bose introduce a double 18. As they are, it's physically easy to run the subs cardioid and end-fire, and easy to set-up in the processing. Once you have a few subs running in the rig, they do exactly what you want. The mid-highs can go down to 60 Hz quite happily, so you can concentrate

on getting the subs to move real low-end air instead of going up to 80 or 100 Hz and getting 'flappy'.

Conclusion

I've had the opportunity to hear ShowMatch with different combinations of amps and processing, and it still sounds really good. It means it's a versatile system; you could do community events and small tours with a rig of 8 to 12 elements a side and four subs with your existing amps and processing, and it will still sound great. Any decent amp and processing combination can make ShowMatch thump. It makes it an enticing proposition for smaller operators; run it for a couple of years with your own racks and then upgrade to Powersoft. The ShowMatch boxes speak for themselves.

Brand: Bose

Model: ShowMatch

Product Info: pro.bose.com

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POWERSOFT T SERIES AMPLIFIER PLATFORM

By Jimmy Den-Ouden

I don't know about you, but I certainly did my years of lugging about heavy amplifier racks. I know a bunch of workhorse amps such as the AM1600 and P3000 are still out in service, but I also know a lot of the people using them tend to carry some spares, because such amps are at an age where they tend to fail from time to time. That's okay if you have truck and a tailgate lifter and bunch of loaders to move the gear about, but I don't. These days my sound gigs are mostly as one guy in a little van. I need to work smarter, because I don't have the labour resources to work harder. Nor do I want to!

In the past few years I've turned over all my amplifier stock to Powersoft Quattrocanali Series, which are great. They're lightweight, powerful, energy efficient, and with internal DSP and Dante support I don't need to carry additional processing. They're installation amps, so all the connectors are terminal blocks. This is great since it saves costs in an install scenario, but since my work is mobile I've chosen to case them and make up custom XLR and NL4 patch panels. At the time I purchased I couldn't justify the flagship option of X series (nor did I need that kind of power), but if I'd waited a year or two longer I would have almost certainly chosen the newly released T Series instead.

The range comprises two each of two and four channel models, with variation in output power the big difference from one to the other. See the little graphic for an explanation of output capacity, and note that the bigger 2 and 4 channel models increase their output capacity into lower impedance loads – they have bigger power supplies to allow this, which means they also weigh slightly more. The heaviest T Series amp is still only 7.1kg though, which is certainly very polite when it comes to lifting it.

The install range and T Series share a lot in common, so when I took a T 302 out to a gig I had a fairly good idea what to expect of it. In a nutshell, the T Series has the same feature set as a Duecanali or Quattrocanali but adds XLR

and NL4 speakon connectors, AES input, and a neat little front panel LCD control interface. Dante and Ethernet is on a pair of EtherCon connectors, and the 2 channel models also include analogue XLR loop outs.

Because they're designed for an international market, the T Series amps are happy to run from 110 or 240V. As we all know, $V=IR$ so when you reduce supply voltage you need to increase current to compensate. To allow for this the supply connector is a C20 IEC. The reality is that while the connector is capable of passing 15A current, with supply voltage of 240V in Australia, the amp will likely never draw even half that for any extended period. It's possible to define a supply current limit on the amp, so you can in fact control the maximum current draw – cute if you're on limited power!

I love a sexy Italian, and Powersoft have gone to town on the industrial design of the T Series. They look damn cool, and in what seems to be an almost forgotten art form the makers have remembered to put handles on the front of the unit so you can transfer it from one rack to another with ease. The central LCD screen is bright and surrounded by 8 illuminated navigation buttons. The resolution is such that plenty of information is shown and yet even with my terrible eyesight I can still read it. At 1RU high the amp's not got a lot of front support, so if you were doing heavy touring I'd probably secure the back of the unit as well. It's not a problem to pack several T series on top of each other in a rack so long as you have adequate ventilation. Because they weigh so little it's completely practical to put several amps into one rack. Work smarter.

ArmoniaPlus is the software used to control all Powersoft amplifier platforms, including the T Series. The interface on all the amps I've used (QC, X, and T Series) is consistent from one amp to another with channel count being the one variation. Because these amps all use the same DSP, speaker presets are easily migrated from one amp to another. Forget punching filters into processors over and over,

with Armonia you do it only once.

ArmoniaPlus is a complete redesign of the previous generation Armonia Pro Audio Suite, and it adds new features such as array shading as well as a redesigned interface. I found Pro Audio Suite is a lot easier to wrap my head around, but Plus offers quite a bit more and once you understand the workflow it's quick to design and configure large systems. Deploying configurations to amps can be done automatically, which is pretty cool (and also mildly terrifying when you're using the new software for the first time). The network discovery feature in both versions of Armonia is reliable, which I think is especially important.

Let's talk DSP. All the T Series amps have it included on-board, in fact you can't get the amp without it. Similarly AES and Dante are standard inclusions. You even can use a T Series amp as a Dante on-ramp to other devices, which is a nice bonus.

The DSP offers a matrix input mixer with failover options for digital / analogue inputs, several different EQ sections, several different output limiters (including peak and RMS limiters), a live impedance display, output delay and active damping control. This feature allows the amp to compensate for resistance of cable runs, because the higher the output power driving into the cable the more effect resistance will have on the signal. The feature is bandwidth limited to 400Hz, so it's designed for low frequency drivers (in other words it's there to make your subs work better). The peak and RMS limiters are good too, if you have the specs of your speakers then you can punch these into a spreadsheet and it will tell you where to set the limiters to protect them. The user guide even has some suggestions on suitable attack and release times, parameters that can be confusing.

If you like to monitor and control what's going on in your system all in one screen, you can setup an "operator view" in Armonia. This allows you to display levels, metering, mute status, delay times, and various other





information about your amps on one screen. It's pretty cool, and with the grouping feature you can do stuff like simultaneously adjust EQ on a bunch of grouped amp channels all at once. Bottom line is there's more functionality there than you could ever hope to need, and if this amp can't make your speakers sound good then the problem is probably your source. Or your speakers. Or your room. Or maybe even you...

Anyhow with so much functionality, how to pack this into a tiny little screen and control it with 8 buttons becomes the final question. The options are pretty obvious, you either remove functions or make the interface very complicated. Or if you're Powersoft you realise that neither is a wholly ideal answer, so you make a compromise between both, then add some shortcuts.

The front panel is arranged into pages, and the menu structure is explained in the user

handbook. I'm not going to delve into the specifics of how it works, but suffice it to say that I think it's a pretty in-depth yet sensible structure given the number of parameters which could have been added.

For my money the easiest control option is to do your homework in advance and build your system configurations in the shop, then load these into the amp. Once that's done it's straightforward to load a speaker preset to a channel. If you put these amps into your hire inventory, it wouldn't be hard to load them all with presets for every speaker you had then just recall the one you needed on the day.

Some manual parameter adjustment is possible from the front panel (eg: I managed to engage a HPF on my output channels, and I still hadn't even read the manual), as are more common operations such as channel output level adjustment and muting. The front panel locks out advanced control when you're

operating the amp via Armonia.

So that's the T Series. I was lucky enough to do some real world testing which involved taking it to the festival I was mixing and running my in-fill boxes off it. Pleasingly enough even though the day was stinking hot (well over 30 degrees) the amp kept its cool, capping out at around 55 degrees internally (while sitting directly on top of the main PA amps). Talk about stress testing! Meanwhile the video guys were watching the LED screen temperature creep up over 70 degrees. It's nice to be cool, and the T Series is very cool indeed.

Brand: Powersoft

Model: T Series

Product Info: www.powersoft-audio.com

Australia and New Zealand: www.pavt.com.au

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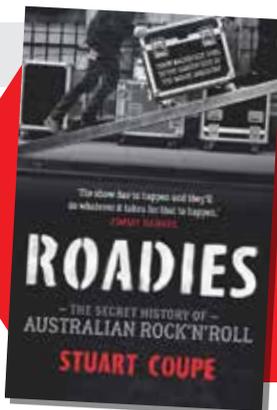
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by Loren Alldrin.
First published in Church
Production Magazine.

QSC CP SERIES LOUDSPEAKERS

Though it seems counterintuitive, self-powered loudspeakers have dropped in price even as they've grown more powerful and flexible. As a leader in self-powered speakers, QSC has helped this dynamic play out over the last few decades. QSC's new CP Series speakers are designed to give this trend a shove in both directions - up in performance and down in price.

The CP8 and CP12 speakers are nearly identical, their main differences being in the size of the cabinets and the diameter of the woofers (8 inches and 12 inches, respectively). Both cabinets use the same

1.4-inch high-frequency driver, but differences in the shape of the cabinet's molded horn give the CP8 a 90-degree conical dispersion and the CP12 a tighter 70 degrees. Both are compact and light (9.5 and 13.5 kg

respectively), making them easy to carry and set up.

The Goods

That leaves the CP8 and CP12 with everything else in common. Both have 1,000 watts of Class-D power with 800 watts going to woofer and 200 watts to horn. Proof that a small speaker doesn't have to sound small, this power generates peak SPL of 124 dB for the CP8 and 126 dB for the slightly more-efficient CP12. The CP12's larger enclosure allows it to reproduce low frequencies down to around 50 Hz (-6 dB), while the CP8 bottoms out around 55 Hz. Both are respectable numbers, and both are achieved with some help from the speaker's on-board DSP.

Speaking of DSP, the CP speakers use signal processing to achieve several different "voicings" tailored to various applications and system configurations. Rather than add

CP 12 Side view



CP 12 Back view



CP 12 on Pole



CP 8 on Yoke



a screen and menu system (which would drive up cost), these voicings are selected with a simple rotary knob. Settings include Default, Dance, Floor Monitor and Speech. The Default and Dance voicings also have an external sub setting that engages a high-pass filter at 80 Hz. Well-mastered music needs no help at the speaker, so EQ presets supposedly tailored to specific music styles are ridiculous. Ignore the label for the CP's Dance voicing and instead think of it as extra "boom and sizzle" for a blah mix.

Actually, don't give too much thought to any of the DSP labels. Try the four options in various settings, and you may be surprised with what works best. I bent the rules and used the CP12's Default setting (no HPF) with a sub for mains, and the CP8's Dance setting (with HPF) as a floor wedge. The Speech setting, though not subtle in how much it thins the sound, could work for monitoring if extra vocal clarity is needed. The point here is that the CP Series' DSP settings give you options, and they sound very good in a variety of applications. Spin the knob.

The CP series speakers have three inputs, all of which can be used at the same time. These include two 1/4-inch/XLR combo jacks (inputs A and B) and one 1/8-inch stereo jack (input C). Inputs A and C share a gain knob and signal present LED. Input B has its own gain knob and signal LED, plus a mic boost button that adds 25 dB of gain. The speaker's DSP applies a bit of logic to the inputs as well. The Speech setting affects input B only. When the mic boost button is engaged in the Dance voicing, Speech mode is automatically set for input B. In all other settings, the voicings match across all three inputs. (DSP voicing is not applied to the speaker's XLR mix output.)

Flexibility is the goal, and the CP Series speakers deliver. There are many simple sound reinforcement setups where these speakers make a mixer unnecessary. Vocal mic plus acoustic guitar plus backing track: check. Vocal mic plus keyboards plus wireless mic: check. Floor wedge with extra "more me" input: check. The list keeps going, and the CP Series speakers sound great in each application. Note that it takes a pretty strong mic signal to drive the CP speakers to high volume, even with the 25 dB boost. A quiet or distant mic (or a timid voice) may not generate enough volume in certain settings.

Options & Assessment

The CP series also offer options for mounting. The cabinet is angled on one side for floor wedge applications, and a pole socket allows for mounting on a stand (or atop a subwoofer, such as the QSC KS112). An optional yolk allows you to permanently hang the CP Series speakers vertically or horizontally, and adjust their angle. QSC has been around the block a few times, and they know how to design speakers that sound great. The CP Series continues this legacy, and I was consistently impressed with the quality (and quantity) of sound these little speakers put out. If QSC is hoping to sell more subs with its CP speakers, they may have shot themselves in the foot. These speakers put out an impressive amount of bass, rendering a subwoofer unnecessary in most applications. (You will have people asking where the subwoofer is, especially with the CP8.)

Of the two speakers, the CP8 impressed me the most. Though quite a bit smaller than the CP12, its max SPL is just 2 dB lower. Its bass output is more than adequate for most situations, and its wider 90-degree dispersion makes it a better fit for small rooms and floor wedge applications. Better dispersion from the smaller woofer also gives the CP8 a smoother off-axis response.

Great sound, compact size, light weight, flexible inputs, mounting options - the CP Series delivers the goods. Add a three-year warranty for peace of mind, and you've got a speaker well worthy of your consideration. A bit of advice: if your church buys a pair of these speakers, get the optional covers as well. They'll likely be hauled all over the place and used almost every day.

Brand: QSC

Model: CP Series

Product Info: www.qsc.com

Australia: www.jands.com.au

New Zealand: www.nsl.co.nz

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¹Passion, Pride, Pitfalls Dec 2014

by Duncan Fry

NEVER MIND THE PA - FIRST CATCH YOUR TRUCK!

As soon as I started to put a PA together, and doing gigs, I realised that as well as a reasonably decent system, I desperately needed a truck, since renting them to do gigs was turning out to be horrendously expensive and left me with little or no profit.

With some careful working and saving, I bought my first truck. It was a Toyota Hi Ace with a box on the back. Originally a bread van and only 4 foot high, I re-skinned the back in aluminium and raised the roof another three feet so I could stand up in the back. I then proceeded to jam a double 4-way plus stage gear and lights into it!

I bought heavy duty tyres for the thing, and pumped them up to 60 or 70 psi to stop them looking semi flat all the time. Whenever we had a blowout, it sounded like someone firing a 25 pounder field gun!

All good things come to an end, they say, and the little Toyota came to an end at about 4 AM on the way back from a gig at Phillip Island.

Coincidentally it was the same day that I had made the final payment on the thing! With a sudden 'clang' followed by a sickening death rattle the little 1500cc engine stopped, never to go again. The camshaft had snapped, bending the pushrods and valves, and fallen onto the crankshaft.

I couldn't afford to be truckless now, though. Browsing through the Trading Post magazine the next day, I saw a Toyota 'F' series advertised for sale for only \$700. I couldn't find out what an F series was, and when I rang the guy, a farmer, all he could say was that it was 10 years old, had a Land Cruiser 6 cylinder engine in it, and it ran pretty well.

I got a friend to drive me out to his farm to have a look. The truck was a monster. Big 20" wheels, a great long bonnet, a steering wheel

“With the aid of some trusty gaffa tape (a.k.a. mechanic in a roll), some rope and a couple of mic stands to wedge the doors closed, I managed to drive the truck back to the factory.”



the size of a hula-hoop, and no muffler! When we started it up it sounded like a top fuel dragster doing a burnout. I loved it!

I pulled out the \$700 and thrust it into his hands.

"Great, mate, I'll take it," I said.

He looked surprised.

"Are you sure?" he asked.

"Yep," I said, "It's just what I need."

"How are you going to get it home?" he asked.

"I'm going to drive it," I replied.

"What, with no muffler," he said, incredulously.

"Sure, no problem," I said, and hopped in.

The noise in the cab was even louder than outside. Slowly I let in the clutch, the beast groaned into action, and we bounced across the fields until we reached the main road. It had enormous torque, and I found that if I left it in 4th gear I could drive it relatively quietly once it got moving.

Driving it to work the next morning in peak hour traffic wasn't quite so easy, but there's one thing about driving a big, beaten up old truck with no muffler - everybody gives way to you!

The floor of the pan was rotted away, but by a stroke of luck I happened to see an old Avis aluminium pan in a truck wreckers as I drove down to the factory. A couple of hundred dollars later it was mine, and I was the owner of a perfectly good heavy duty 7 tonne truck for under a thousand dollars!

It was really hard to get parts for the truck. Not because they didn't have them, but because the people at the counter would never believe me when I told them the model.

"I need a new widget for my Toyota," I would say

"What model," they would ask

"An F series," I would reply

"They don't make an F series - are you sure you don't mean a Ford F series?"

"No, I mean a Toyota."

"No mate, never heard of an F series. You sure it's not a Ford?"

This used to drive me crazy.

"Look," I'd yell, "There it is parked out the front with Toyota written all over the front and a big F badge on the side! Now do you believe me?"

"OK mate, OK, I believe you," they would say, scratching their heads, and thumbing through their parts books.

Even the cop who booked me in Wangaratta for having no mudflaps wrote Ford on the ticket!

It turned out the F series was a petrol version of the D (for diesel) series. Once I found that out I had no more trouble with getting parts. Why Toyota didn't call it a P series I'll never know! Luckily it didn't need many spare parts, though, and ran like clockwork for over a year.

Internally, though, the cab was a bit industrial. No heater, no stereo, no floor covering apart from a thin piece of torn rubbery plastic, and a big soggy bench seat. So I set about making the cab area a bit more pleasant, since I was sure I'd be spending quite some time in there.

Several layers of rubber underfelt brought the inside noise level down to a dull roar, although it was still more noisy than was comfortable for long trips, and would require a stereo with serious SPL in order to have some music as we travelled. Sadly my \$20 NoNamo brand radio/cassette player with little monitor wedges gaffed to the dashboard was all but drowned out by the noise, and getting a better one just wasn't an option.

But some headphone jacks mounted in the dash made all the difference. Wired straight to the speaker outputs, they were plenty loud enough. We had some industrial earmuffs fitted with Sennheiser inserts to use as headphones. Put them on and you instantly slipped into a world of your own.

With the bench seat being wide enough to carry three people in comfort, and four at a

pinch, we could all sit there happily rocking away in silence. It was probably highly illegal, but it meant that you arrived at the gig with much fresher ears than if you'd suffered the howl of the gearbox and the roar of the engine for four hours.

One morning I had arranged to drop the band's stage gear back at their house. Of course, this would be morning in musician's time zone, so I rolled up at about 2 PM in their fairly narrow suburban street. Surprisingly the boys were awake, and even more surprisingly, quite willing to help me unload their stuff.

I said goodbye, climbed into the truck, and did a U-turn outside the house to head back to the factory to check over the system, as I had a snow tour starting in two days. WHANGGG! A shudder ran through the whole truck.

Holy crap, I thought, some bastard's run into the back of me! Fuming, I climbed out with the truck wheelbrace in my hand, ready for some intense negotiating. Imagine my surprise when I found that no-one had run into me, in fact, the opposite had occurred. The big front peak of the truck had hit an overhanging tree, and popped every rivet on the passenger side of the pan. The doors had sprung open, there was a huge dent in the peak, and the whole side of the truck was hanging down on the ground! With the aid of some trusty gaffa tape (a.k.a. mechanic in a roll), some rope and a couple of mic stands to wedge the doors closed, I managed to drive the truck back to the factory.

After two days intensive work with the rivet gun, hacksaw and several tubes of silicone, the body was back in some kind of shape. Unfortunately it had lost the peak, it being too damaged to repair safely, so my convenient bed/ storage/ lighting area was gone forever. But luckily the car stereo and headphone system survived, and was transferred to the next truck when the Toyota finally bit the dust, and even later into my car. Must have cost me about a dollar a year all up - they just don't make 'em like that anymore!

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