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Contents Photo – Tina Arena Enchanté 2021 Australian Tour. Photo credit: Peter Rubie, Production Lighting Design Facebook: @prubielx Instagram: @peter.rubie.


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

Editor and Publisher: Jason Allen
Layout: mark wood design – Mark Underwood and Alisha Hill





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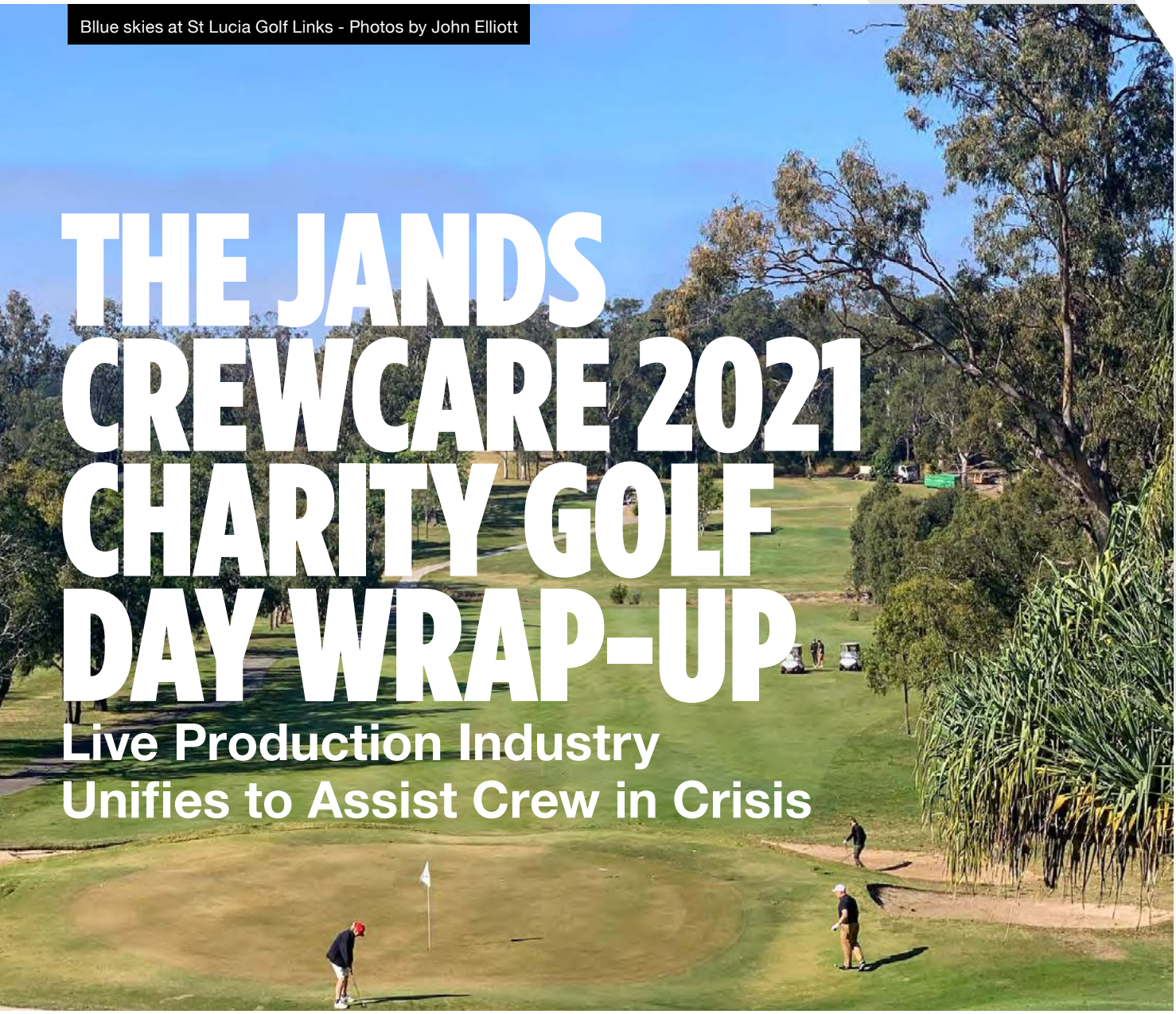

Bllue skies at St Lucia Golf Links - Photos by John Elliott

# THE JANDS CREWCARE 2021 CHARITY GOLF DAY WRAP-UP

## Live Production Industry Unifies to Assist Crew in Crisis

**It was a somewhat chilly and foggy start to the inaugural CrewCare Charity Golf Day, but nothing would deter the intrepid golfers who turned out en-masse to support live production crew at St Lucia Golf Links in Brisbane on Wednesday 16th June.**

The event was organised by NW Group's Queensland General Manager Ray Moss after a discussion with fellow production industry colleagues, who also happened to be avid golfers. It only took a few phone calls to establish many of Queensland's major production businesses were keen to support their crew while raising funds for industry charity CrewCare, an organisation dedicated to their wellbeing.

Industry giant JANDS immediately came to the fore, providing major sponsorship, with others soon stepping up to the tee from around Australia – NW Group, Marsh Entertainment Insurance, Dreamweavers, DW Sound, EVENTelec, Iceworks, JLX, NautCases, Show Technology, The Triffid/ Fortitude Music Hall's John 'JC' Collins (Powderfinger bassist), Rolling Stone Magazine publisher The Brag Media and Tones & I/Tash Sultana management Lemon Tree Music.

Jands astonished organisers by offering a $1 Million Dollar donation to CrewCare, should any golfer manage a 'hole in one' on the day.

On the morning of the comp as the fog lifted, the magnificent course was bathed in sunshine, providing the perfect setting for a fabulous morning's golf. The day's play was competitive, with much laughter and light-hearted jibes to be heard across the course as a number of fundraising enticements were held – a chipping competition, Mulligans, closest to hole and extra meterage could be purchased, which raised an additional $4,817 over the round.

Once play concluded, 108 happy golfers made their way back to the clubhouse to learn the results.

CrewCare co-founding director Tony Moran kicked off formalities, thanking sponsors and all participants for their incredible support, stating; "This is a watershed moment for the live production industry. In a highly competitive industry, it's pleasing to see so many businesses coming together for a single cause and an encouraging step towards our sector presenting a united voice. Let's keep these conversations going."

Misty morning

CrewCare wish to thank our sponsors, organiser Ray Moss, event manager Raymond Maguire, publicist Deb Gann, photographer John Elliott, Jason 'Naut' Gendrolius, Paul Mortimer (Queensland Decal) and the many participating teams that came out in support…

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If you wish to support CrewCare and the many Australian roadcrew going through tough times, please donate via the following link:

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Golf carts



Tony Moran & Ray Moss

Waiting for results

Winners Clifton Productions Team Mince

Ray Maguire & Jason Naut Gendrolius

The live production industry has been one of the hardest hit during COVID, with many businesses struggling to stay afloat. Moran noted; “In a time where many of you are doing it so hard yourselves, it’s humbling to see you put your crew first and acknowledge they are the ones hurting most.”

Then proceeded the much-anticipated results, with Ray Moss announcing the winning team. First place went to the Clifton Productions entry Team Mince, who delighted those gathered with what could only be described as the most impassioned acceptance ever witnessed! So confident were they of winning the event, they had brought along their own trophy, before accepting the winner’s certificate.

A further $500 was gifted at silent auction for two rare Waterford Crystal Jack Newton Classic tumblers, kindly donated by Rray Maguire [sic].

The day raised more than $22,000, with donations totalling $18,000 going directly to the Support Act Crew Fund, ensuring it reaches those crew needing it most.

In the past two weeks alone, Support Act has received over 700 applications for crisis relief through their CrewKeeper and MusicKeeper programs. Support Act has provided $729,211 in crisis relief to 313 crew since they introduced their CrewKeeper cash grants in late March.

Whilst the standard of golf exceeded all expectations, no-one was fortunate enough to hit the magical ‘hole in one’, yet the day itself was ‘worth a $million in prizes’ (Iggy Pop – Lust For Life).

As participants departed the 19th hole, “Bring on 2022” was notably heard. Never a truer word spoken for the many there…


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Photo credit: Paul Wells

# No Bull with Chinese Ox Sculpture Illuminated by Astera

**A large, illuminated Ox artwork created by Paul Wells from Sydney Props Specialists to celebrate the Chinese 'Year of the Ox' was illuminated with Astera Titan Tubes and NYX Bulbs and realised in collaboration with Sydney Event Services. This stood proudly on display in Darling Harbour, Sydney, Australia, for three weeks during the 2021 Chinese New Year celebrations.**

The work was commissioned by Sydney's Harbour and Foreshore Authority. They approached Paul just four weeks ahead of this year's Chinese New Year and asked if the piece could be delivered as an internally lit steel-framed structure with stretched fabric skins.

Paul in turn asked Mitch Hancock from Sydney Events Services to assist with the project's lighting and delivery. Once work started on the Ox, which is 1.16 metres wide and 2.4 metres long, Paul and Mitch soon realised time was simply too tight to complete the structure in hand-welded steel, so instead proposed the ingenious solution of 3D printing, a task expedited by a giant printing machine at Composite Images in Artarmon. All the other design requirements stayed the same, and right from the outset Mitch proposed that Astera products should be used as the perfect lighting solution.

Mitch has been an Astera fan for some years - "I absolutely love the products," he declared. He regularly uses all the current Astera ranges for multiple projects. He enjoys a great relationship with Astera's Australia and New Zealand distributor, ULA Group.

For a project like the Ox, the two Titan Tubes and five NYX Bulbs inside were ideal due to their light weight and wireless control in addition to the beautiful colour ranges and super-smooth light output. Two Titan Tubes illuminated the body, with the bulbs positioned to spread lumens down the limbs and into the head distributing it and achieving a nice even glow. The Titan Tubes were secured using the various Astera mounting clip options, with the NYX Bulbs fitted into waterproof light sockets mounted directly inside the Ox.

Another major consideration was having weatherised lights, so the products being rain-resistant hit the spot and the client was also very specific about how the creature should be lit, so being able to control the lights quickly and easily via the Astera App made fine-tuning these details very straightforward.

The quality and appearance of the light was also critical, explained Paul. While it was initially planned to light the Ox only at night, switching on at dusk, the Asteras proved to be equally effective in full daylight, texturing the surfaces and generally giving the sculpture more depth and bringing it to life, so the installation was kept running 24 hours.

The electrics were all fed in and out through one of the ox's hind legs and hooves, down into a waterproof plinth below on which it was mounted, keeping all the electrics safe and dry.

The client requested four different colour combinations and the plan was to choose one signature look, but the Astera App allowed Paul and Mitch to animate the lighting and create a sequence that scrolled seamlessly between all four lighting designs to the delight of the client.

The biggest challenge was creating a sculpture that would be safe, strong, and secure, and as a piece of public art it needed to meet the strictest engineering assessments and safety requirements, so this had to be kept in mind for all aspects of the build. This suited Paul and Mitch as they were able to think laterally, locally, and imaginatively in bringing the project to fruition, a process which both really enjoyed. The Ox was a massive hit with the public in the Darling Harbour installation providing a myriad of Instagram moments.

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# Absen LED in virtual production

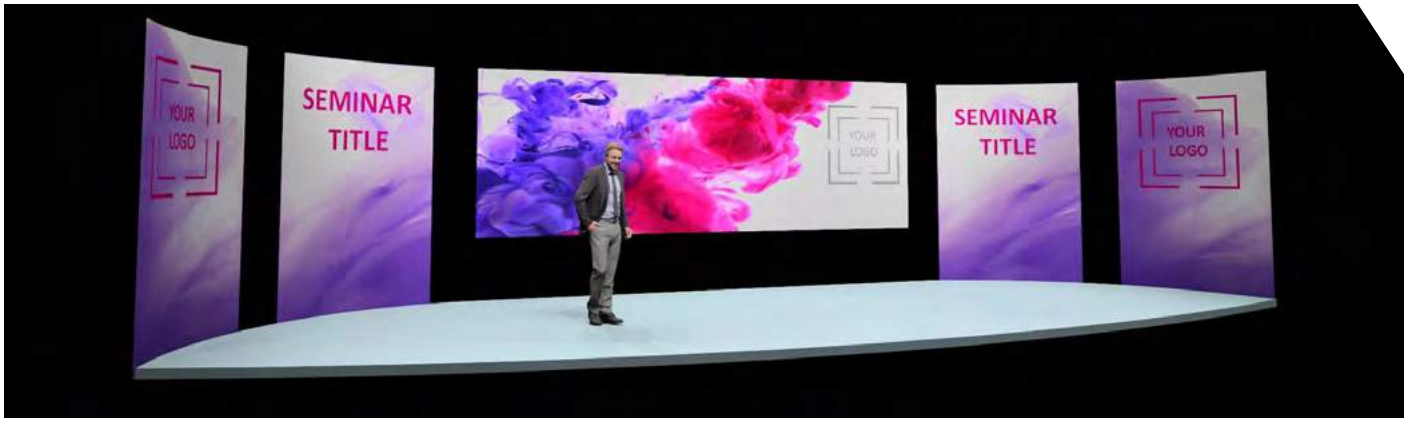
**In recent years, LED has skyrocketed in popularity as a broadcast and virtual studios solution to creating extraordinary cinematic effects that can be flexible to the needs of any space. By using the latest LED technology, studios across the globe have begun to adopt LED as an upgrade from traditional green screens, as evidenced in Absen's latest installations within virtual studios.**

In response to the difficulties of the pandemic, virtual studios have begun to use LED technology to host live online events for all kinds of industries, from education, to corporate, to music.

In 2020, UK-based event production company Sterling Event Group designed a live studio production space that enabled it to continue providing high quality online events throughout the pandemic, named Sterling Studio. The 230 sqm black box space provides a one-metre-wide stage, backed by a 16m x 3m curved LED screen, which was created with Absen's Polaris 2.5mm Pro panels.

The screen is paramount to Sterling Studio and provides sharp, high quality visuals that are impactful on camera and in person. The Polaris series also features a curved locking system, allowing for convex (-7.5˚) or concave (+10˚) shapes to be modelled as needed to further improve the striking visual effect. The result is an immersive environment capable of adapting to the needs of the studio; the LED screen can display presentations, social media feeds, and other custom backgrounds simultaneously for any clients that wish to hire the space.

This use of LED for broadcasting and live events has also been found in Sweden's Gothia Towers, where Absen's Acclaim Series, the A2715 Pro, has been used to



create an interactive hybrid room, nicknamed "The Studio".

The Studio required a flexible system that could provide the perfect environment for a hybrid conference room, but also be used as a streaming studio for recordings and live broadcasts. The 180-degree panoramic LED display is suitable for streaming and viewing up close due to its high resolution and 1.5mm pixel pitch, making the A2715 Pro the ideal solution.

Visually, the A27 boasts a 600-nit brightness, with an incredibly high contrast rate, and effective heat dissipation, made possible through Absen's Common Cathode Technology. The robust nature of the product is down to its 4-in-1 pixel configuration, making it one of the strongest indoor LED options on the market. These attributes contributed to the installation immensely, as not only would the display be visually impactful, but also have durability, and essentially be a futureproof installation capable of managing LED on camera in the pandemic era and beyond.

With Absen's indoor displays, the broadcast vertical is evidently embracing the creative possibilities of LED, and this trend looks set to continue in all kinds of filming and streaming applications for many years to come.

Visit **www.absen.com** for more information.


# Optical Audio Put Their Spin on Brunswick Ballroom

Recently opening its doors as Melbourne's newest cabaret and live music hotspot, Brunswick Ballroom is quickly becoming a hub for some of the best live entertainment Australia has to offer. Residing within the historic Metropolis House building on Sydney Road, the newly refurbished venue takes over from popular live music venue The Spotted Mallard, which closed its doors in 2020.

The location has a long history dating back to the 1960s, having served as a wedding reception centre, hat factory, nightclub, and even French restaurant, until being transformed into The Spotted Mallard in 2012. Determined to make the building's new lease on life something special, the crew behind Brunswick Ballroom were quick to revamp the upstairs sound system, enlisting the expertise of Optical Audio Productions to oversee installation and operation of a fresh PA setup.

Installing a scope of high-quality hardware throughout the primary space, Optical Audio's fitout includes solutions from NEXO, DiGiCo, Quest Engineering, and Camco. The Front of House setup comprises a NEXO GEO M10 line array system, with NEXO's PS8 point source as front fill, powered together by a NXAMP4X4. A series of Quest Engineering's compact HPI5 speakers form a delay ring, whilst Quest's QM12MP can be found on stage as floor wedges for foldback. An additional PA, used as the house background system, is comprised of Quest's MX801 loudspeakers and MXS10 Subs. Camco's D-Power series powers both the QM12MPs and MX systems.

NEXO's GEO M10 is a world-leading line array series featuring an exceptional size to power ratio. The system's ability to deliver pristine, full-range sound across the entire upstairs area using only three cabinets per side, made it an ideal choice for the space as Jason Read, Optical Audio's Technical Director explains.

"The venue is moderately sized but the new stage itself is quite intimate; there isn't much space for ground-stacking and a limited area to conceal hardware. Using a couple of short M10 hangs and some LS18 subs under the stage was the most unobtrusive solution. The three-a-side M10 systems are enough to deliver the clarity and SPL required for the venue's cabaret, comedy and live music, largely due to the amount of power you can get out of each NEXO box."

Boasting a refurbished look inspired by Prahran's legendary Continental Café of the '90s, the new venue seats up to 290 people, and includes the Brunswick Artists' Bar downstairs as a secondary entertainment space. Jason goes on to speak about the reimagined venue, and the changes made to the upstairs layout since its transformation.

"The previous venue had a stage facing the bar, which in turn, meant the PA was facing the bar too. This new layout has the stage almost perpendicular to the bar, so our PA is firing 'past' it. I'm certain the bar staff are a lot happier with this layout, as it is much easier to communicate in the service area now. We've been able to fine-tune this separation between audience and service area even more thanks to the directional technologies in the M10 modules. The new stage orientation also means that the performance direction is in line with the roof beams, creating an opportune place for the HPI5 delays."

At the rear of the venue sits a DiGiCo SD8 console, handling both FOH and monitor mixes for the stage. Based on the same versatile technology as DiGiCo's previously long-running flagship console, the SD7, the SD8 provides the venue with a comprehensive solution to engineering Brunswick Ballroom's eclectic and diverse range of performances.

Since taking over the lease in late 2020, the venue's new proprietors had been working nonstop to bring their version of the majestic Brunswick space to life. The space was to open alongside 2021's re-emerging live music scene, requiring Optical Audio to work within a carefully managed timeframe and budget. Solutions from Quest Engineering were chosen when professional, cost-effective systems were needed in addition to the primary PA hardware.

"The Quest MX and HPI series provided the quality and price point combination we needed for the background system and delay ring. We also like Quest's QM12MP as it's a very capable foldback monitor; we've come to rely on them for exactly these sorts of theatre and cabaret setups."

With stunning stained-glass domes embedded in the ceiling, and a balcony with views of the Melbourne city skyline, Brunswick Ballroom certainly looks the part. With the addition of a brand-new sound system, featuring a symbiosis of world-class technologies, Brunswick Ballroom is now destined to take up the mantle as one of Melbourne's most dynamic and exciting performance venues.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L to R - Dan Grace, Mark Blake and Allyssa Tonks

# MECC Invests in Robe FORTEs

Head of lighting Dan Grace and his team are delighted to be amongst the first in Australia to have Robe's new high power FORTE LED luminaires in the house, with a purchase of twelve of the fixtures plus twelve new Robe Spiider LED wash beams, with more of both types of moving light to follow once the season ramps up again!

The decision to buy FORTEs was underlined by MECC's previous experiences with Robe, with nearly 100 fixtures already, including 30 DL7s, a mix of profiles and fresnels, which directly replaced 36 hot and power-hungry 2K fresnels in the main theatre in 2019.

The last batch of these DL7s arrived together with three RoboSpot systems and BMFL FollowSpots, a move that was driven by MECC's head of AV, Mark Blake.

Mark and Dan are part of an MECC technical team of 18. They were both instrumental in persuading the local government officials who oversee MECC's operation that the time was right to convert the theatre to a full LED stage lighting rig.

Moving forward, LED is now a prerequisite for any new lighting investments and "it made sense to keep brand consistency throughout the venue and we enjoy a great relationship with our supplier Kennedy Amplifier Hire Service and Australian distributor Jands," confirmed Dan.

The new FORTEs and Spiiders will mainly be utilised in the Convention Centre halls as part of the main production lighting rig. The other eight FORTEs and six Spiiders on order are destined for the main auditorium, however all these newest fixtures will be interchangeable according to requirements in the different venues.

Dan's ultimate goal was to have a lighting rig that could offer multiple possibilities from one standard design, which would suit all events from a conference one day to a concert for 1500 people the next. Features like framing shutters, the large zoom range, the deep saturated colours, and low noise all played a part in the decision to choose FORTE. The ability of the Spiider to be a wash or a beam due to the zoom, and its excellent array of colours made it an easy choice as a replacement for their LEDWash 600s.

When it came to the FORTEs, initially they had been thinking in terms of a BMFL for power and versatility, but as the time approached to make this particular investment, so did the requirement for it to be an LED source, so first they looked at Robe's ESPRITE. This was the first Robe product to offer the manufacturer's proprietary cutting edge TRANSFERABLE ENGINE (TETM) technology with a unique replaceable LED light source.

They then got wind during 2020 of Robe releasing a powerful LED BMFL type with loads of power and features, and decided to wait until this was available to make their final decision. Dan received the FORTE spec sheet and was "super impressed", especially by the two rotating gobo wheels, the shuttering system and the 1000W LED. "I knew without even seeing it that this was the perfect luminaire for our venue, and one that would last us well into the future," he enthused.

The decision was made, and the PO signed!

In a normal year, MECC would stage a vibrant mix of around 350 diverse events across all venues, halls, and spaces. In March 2020 with a busy year ahead, everything stopped as countries worldwide grappled with their first waves of the Covid-19 pandemic.

Mackay's local council retained staff and kept everyone working, with time meaningfully utilised in updating safety management systems, venue cleaning, purging old and unused kit and various other stuff, installing new cable runs and generally creating and refining infrastructure to make life in the production fast lane easier long-term.

In August 2020, the Mackay Festivals team produced "Festival Sessions", a small run of live streamed events featuring two-hour performances by a wealth of local talent from the Mackay region; DJs, bands, soloists, comedians, canvas painters and even some dance schools, all of which were hugely popular with the live entertainment starved public!

After August, things slowly started picking back up and all the usual events like concerts, dance school season, and school awards nights started reappearing on the schedule. The next six months are looking like all action as they will be delivering a regular calendar of shows to the usual high-quality production standards as well as plugging any gaps with the demand for events, conferences and shows that could not happen in 2020!

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### Redback UTP Extenders

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NEW


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**New Zealand: Show Technology New Zealand www.showtech.nz (09) 869 3293**

### Espon EB-PU2000/1000 series

The new EB-PU2000/1000 series builds on the success of Epson's EB-L1070U series and includes 6,000, 7,000, 8,500 and 10,000 lumen variants offering WUXGA resolution with 4K enhancement, HDR and advanced installation features. The EB-PU2000/1000 series supports Epson's existing range of motorised lenses and provides additional options such as the new ELPEC01 external camera module. Other features such as stacking assist, tiling assist and image calibration are supported with the Epson Projector Professional Tool software.

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# GEAR

### Astera PixelBrick

Perfect for concerts, events, filming, or broadcast, PixelBrick is compact, light (1.1kg) and exceptionally handy as an up-lighter, or can be hung anywhere and become a universal IP65 rated light for accenting and texturing buildings or facades. The PixelBrick has 450 Lumens and 1200 Lux at 2 metres – both at 3200K and can also be used like a Par as a general-purpose fixture complete with a bracket. PixelBricks can be easily joined together and built into an impressive array of geometric shapes and clusters. With the help of adjustable connectors, shapes like circles, hearts, numbers, plus other illuminated scenic pieces or signage can be created.

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**Australia and New Zealand: Eventec www.eventec.com.au or +61 (0) 2 9897 3077**


### Lightware TPX Series

Lightware's new TPX Series point-to-point CatX extenders are designed to extend HDMI at 4K60 4:4:4 resolution over standard CatX cable, with options for remote powering using either Power over Line (PoL,12vDC), or Power over Ethernet (PoE, 48vDC) standards. Using Semtech's AVX technology, Lightware TPX units can simultaneously transmit uncompressed quality 4K60 4:4:4 video, multi-channel audio, Gigabit Ethernet, USB, and control signals over a single CatX link to provide a simple AV extension solution for integrator applications. Through AVX chipsets, the Lightware TPX series also offers native interoperability with any existing SDVoE hardware in PtP applications, ensuring compatibility within the SDVoE Alliance of over 50+ supporting manufacturers.

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# NEW GEAR

### SSL UC1

Building upon decades of SSL's unique knowledge of console ergonomics and production workflows, UC1 delivers simultaneous multi-function control of the included SSL Native Channel Strip 2 and Bus Compressor 2 plug-ins within your DAW session. At the heart of the UC1 is the SSL 360° Plug-in Mixer, allowing users to access and control all of their Channel Strips and Bus Compressors in one virtual console overview, offering a true console-like approach to mixing-in-the-box. The UC1 combines studio-quality encoders, switches and feedback LEDS, with an authentic moving coil Bus Compressor gain reduction meter for that true console 'centre section' experience.

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### Event Lighting DIM4

The DIM4 is a dimming pack with four output channels, each of which can be loaded up to 3 amps (720 watts) with a maximum of 8 amps total across all 4 channels. DIM4 can be controlled using its built-in chaser and sound control functions, or by using DMX. The built-in chasers and onboard faders make it easier to control light output.

### Event Lighting Lite LM180BWS

The LM180BWS is a beam, wash and spot hybrid moving head, featuring a 7500K 180W white LED lamp, an automatic beam angle of 3.8 to 30 degrees and a spot angle of 9 to 37 degrees. There are 10 vibrant colours, an interchangeable rotating gobo wheel with 6 gobos and a fixed gobo wheel with 16 gobos. The moving head is capable of producing various effects with its 3-facet prism, adjustable focus, strobe and dimming. There is an optional road case that holds two units and optional wireless DMX.

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### Showtec Performer 1500 Q6 Fresnel

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Melbourne

# Tina Arena Enchanté 2021 Australian Tour

by Domenico Carrera

## On Tuesday the 11th of May, the Tina Arena Enchante 2021 show rolled into the Adelaide Entertainment Centre for the South Australian leg of an eight city Australian tour.

I caught up with one of Australia's highly respected sound engineers, Melbourne-based Danny Olesh, who was charged with delivering high-quality sound for the show.

The show carried multiple hangs of d&b audiotechnik KSL K8s, fed by an Avid S6L running Waves plugins at front of house, with another on monitors, both sharing a 64 input stage rack, all connected via AVB. The system was supplied by JPJ Audio.

The S6L at the monitor position was the master console on which all stage input gains were set. For the Adelaide show, a total of 56 audio channels were used from the stage, however, when groups and FX returns were added, the count totalled 72. For the Melbourne leg of the tour at the Sidney Myer Music Bowl, the channel count went up to 120-plus to cater for the Melbourne Symphony Orchestra. A separate console was used by John Hall to mix the Orchestra and the stems were sent to the FOH console for Danny to mix in with Tina and the band.

I had the opportunity to sit at Front of House during sound check and watch Danny weave his magic. Later, I witnessed the consummate professional that is Tina Arena perform many of her much-loved songs from her 20-year-plus catalogue.

Following sound check, Danny and I sat in the Entertainment Centre's loading bay and discussed his career as a musician, electronics designer, software developer, studio owner, sound engineer, and production manager.

**How many years have you been in the industry and how did you get started?**

It's been well over 40 years, and I have been pretty much involved in every facet of the music industry. My father played music and that led me to the electronics side of things, to computer engineering. I started playing music, used and learned a multitude of equipment, played keys and sang, and helped set up shows. I worked in recording studios, then owned a studio. I got involved in audio sales and retail management, started writing software, importing products and owning a distribution company.

**I understand you also designed some equipment?**

Our team created some real cool IP for digital mixing using HTML 5; the UI 16 and 24 which became so successful that we sold it to Harman. The original brand was SMPROAUDIO, and it became a Soundcraft product. It was an amazing learning experience.

**I hear you recently have taken on a new role in the audio industry with a global audio company?**

Yes, I am now working as the global CTO for Mackie International. The team at Mackie understand my love of the touring side of audio, and they have allowed me to continue to tour, as long as I can complete my tasks.

**What are the most valuable lessons you have learnt about sound?**

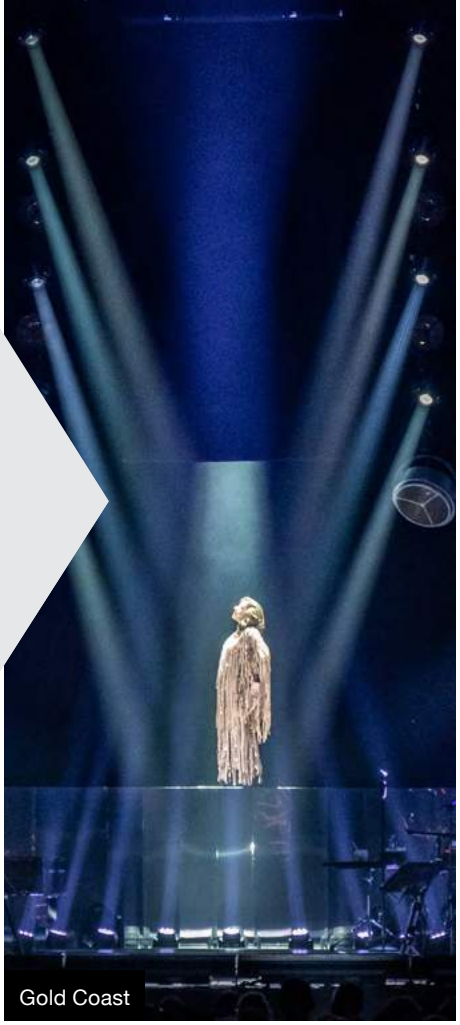
The first valuable lesson is to learn the music and genre you intend to mix inside and out. Have a good relationship with the artist, if you can, acknowledging that maybe sometimes it's not possible especially when you do a walk-in mix for a band you don't know. But the basics are still the basics and knowing a certain type (or types) of music will help you mix that style better.

Secondly, you need to learn to trust your ears and know where everything needs to be placed in a mix to create that space for the vocals. Mixing just instruments is easier, but when you have different vocals, and many of them, it's a lot harder to get a really nice smooth band and vocal mix. It's all about knowing the tricks to enable you to create that soundscape where everything is sitting in the right position.

**Is it all about making space for that money-making channel like where to place Tina's voice?**

Yes, that correct, but I also hate harshness and I try and remove that as much as possible.

Gold Coast



Gold Coast

Adelaide

**Who was your first mentor?**

Bruce Johnson, the owner of JPJ Audio. He was mixing Oasis, Crowded House, Big Pig and many other big bands and used to mix our band in the 80s. I used to go and watch what he did. But much of my knowledge I gained through experimenting and listening to what other people were doing and trying things out for myself and listening back, perfecting my technique as much as I could in my own time.

**You were mixing on analogue initially?**

I was mixing mainly on analogue, and when digital came along, I wasn't mixing at all in digital. I was designing software, I was in retail. I knew about digital consoles, I could build them, but I was not doing many shows. Then suddenly around 2016 I was doing shows and I was involved in a Prince tribute show. It was at that point I thought I'd better learn the larger digital consoles as well.

It was a right fit for me. I already had an intimate knowledge of plugins as the company I was involved with, Sound & Music, distributed the Waves suite of products, which I still use today.

So, from a mixing point of view, I knew what to use, how to use it and where to use it. Transferring that knowledge to the live scene was easy for me and really cool.

**What was your first tour?**

It would have been in 1994 or 1995 with Rick Price.

**He actually had a duet with Tina Arena?**

That's right. Both Rick and Tina used to share the same manager. He is still active and sings very well.

**Your favourite PA?**

To be honest there are a lot of very good rigs around and it really depends on the system tech and system engineer and what they can achieve for the type of music and mix you are trying to recreate, as well as venue size requirements.

On this tour we are carrying multiple hangs of d&b audiotechnik KSL K8s and it is sounding fabulous. The system techs, Boden Birkett from JPJ Audio and John Hall, are great.

The last Guy Sebastian tour I did was in 2018 and I used the JBL A12s, which were also fantastic. I have used a lot of other brands that sounded good, but it does come down to the fact that if you have a good system tech who sets up the right amount of boxes in the room and it is designed and tuned properly, you can get the PA to sound beautiful.

Left to Right: Peter Rubie (lighting), Ryan Fallis (system tech stage), Ricki Rae (monitor engineer), Danny Olesh, Boden Birkett (system tech PA ), John Hall (system tech FOH )

I always have an idea of the sound I want to achieve, and I rely heavily upon the system techs. I play them what I want the sound to be like and that gives them something to work with to make the PA sound the way I want it to be.

**What's your favourite mixing console?**

It's difficult to say. I love using the Waves LV1 system if I am going to carry one around in my case. It sounds great, it is really compact, and I have used it on a few tours. I love using the Soundcraft Vi because the pre-amps are so warm, and the console has built-in Lexicon hardware processing. The reverbs sound gorgeous and lush; I used them on the last Tina tour.

Lately I am enjoying the Avid S6L, which sounds fantastic with all the plugins I want and need. The workflow is very similar to the Vi but the features and speed are a lot more current.

**What are your favourite plugins?**

I love the Waves F6 Floating-Band Dynamic EQ and C6 Multiband compressor. They are what I use the most across my groups and on some individual channels. Then there's the H-Reverb and a plugin called Vitamin, which is a multiband sonic enhancer. I have an SSL compressor across the mix, SSL Channel on kick and snare and a lot of side band control from vocals to groups.

**You don't bring any speciality analogue gear with you on tour?**

No, no need. I have all I need in the console and with Waves plugins.

**How much pre-work have you put into this Tina Arena Australian tour?**

We began with five days of band rehearsal, with full monitors, where I recorded multitracks, listened to them, and started to program the console. That was followed by two days of pre-production with full front of house mixing, and then finally one preview show before the tour.

Normally we would have a few extra days, but the tour schedule did not permit us to do any more.

The pre-work allowed me to listen to the songs probably 100 times or more to understand what every track is doing and what was needed for every song in Tina's tour.

**Moving onto the stage and your stage mic'ing. I spoke with your stage manager Jase who informed me that there are no backline amplifier cabinets at all, other than a sub for the double bass.**

I wanted a quiet stage and I did not want any amplifiers onstage except for the bass player. He uses the sub to feel his double bass.

**You didn't have any trouble with the double bass?**

No trouble at all. It's all a matter or tuning properly and notching out what gives you trouble. There is no need for plugins, just use the console parametric EQ. Each room is different and it's a matter of using your double bass presets and tuning it to that room without removing the frequencies across the entire mix.

Blakely Maclean Davies is using a transducer and microphone combination on double bass, a DI on electric bass and two keyboards that go into a Helix processor to get that particular sound that suits each song.

**Let's move onto the violin, played by renowned composer, violinist and dancer Eric Avery who also opens for Tina. How is he mic'ed?**

He is on a Barkus Berry transducer and DI, and the S6L and Waves plugins I use handle the violin very well without the inherent harshness.

Our Musical Director, Dorian West plays keys, guitars, lap steel and flugel horn and is simply mic'ed with a wireless Shure Beta 58. He also controls the backing tracks.

We also have Jake Earl also playing keyboards, and a superb sounding Yamaha Clavinova digital piano.

Tina's drummer is Daniel Furrugia, a very tasteful player. He has a very old drum kit with thin skins, and I use mainly Shure and Sennheiser on the kit to make it sound smooth and full. I run the normal Beta91 for Kick in and a Beta52 for kick out, SM57 for top and bottom on snare 1 and snare 2, Shure condensers for hi hats and overheads, and Sennheiser 904s on the rack and floor tom.

We have the fabulous Nilusha Dassinakie on backing vocals, on lead guitars we have Emilio Kormanic, and there is also an entire team of creative talented people behind the scenes who have worked tirelessly to help present the best Tina Arena show possible.

**Let's talk about the money maker: Tina Arena's microphone and channel processing.**

I tried a few new capsules for Tina and Nilusha for the live shows and found the SE V7 capsule sounds marvellous and suits Tina's voice the best. It gives her that

breathy sound I need. The capsule has an exceptional super cardioid directional pattern and does not take in too much onstage sound.

For processing, I use snapshots to store different settings on the plugins, FX and EQ, depending on which song Tina is singing. I use the S6L on-board EQ, with a high pass filter, to notch out certain frequencies. It then igoes into a Waves C6 multi-band compressor to an F6 floating band dynamic EQ. It's used for notching certain frequencies depending on the song dynamics. This changes within each song as well.

I follow up with a Waves De-esser, and then finally into a Waves plugin called Vitamin, a superb multiband sub harmonic and top end enhancer that just makes Tina's voice sound so lush and beautiful without being harsh.

For FX I use the Waves H-Reverb with a De-esser to create a reverb with less sibilant sound. Again, depending on the song, a short or a long reverb. The long reverb is controlled by an aux send fader, not a return on the console, so I can allow the long reverb tail to finish nicely when nothing else is happening in the mix.

I also use chorus and delay on certain songs. All together I am using eight FX, long and short for vocals, specific reverbs for snare and toms, instruments reverbs, two delays and a doubler and chorus.

On monitor duties we have Ricki Rae on another Avid S6L console. He controls all the stage microphone gains and shares them with the FOH console via AVB. He also looks after the stereo Shure in-ears and stage processing for all the performers onstage. Ryan Fallis is there to help setup and take care of all the RF frequency coordination.

**Do you use the sound check mode?**

Absolutely. I arrive at the venue at least 4 ½ hours before the band and run through every multi-track in the set list to tune the PA. I find and deal with any problematic frequencies, and see how the room responds. Rickie also uses sound check mode and uses full cuff headphones as his cue to adjust all the onstage in-ears levels.

**Are you using backing tracks?**

Yes. They are controlled by our MD Dorian West. I have built a special rig for backing tracks that is also used for Icehouse and many other bands. It consists of two Cymatic uTrack 24s in failover mode via a Radial switching DI in redundant mode.

**What are some of the most important things you setup when you turn up to a show?**

It depends on the show and the location. In an arena, the system techs have already hung and tuned the array to the venue. I tend not to use Smaart as such. I leave it up to Boden and John who are the experts in arrays and processing. They know what I like and they try to achieve that soundscape.

They are tasked with aligning the arrays in the venue using the d&b NoizCalc and ArrayCalc software to achieve good base line audio. I listen to the PA, playing some multitracks, and I do a little more notching via the Waves Q10 parametric EQ. If harshness comes into it at certain volumes, then I will put an F6 dynamic EQ on it as well, and then the SSL compressor on my console output. We all discuss the overall sound and listen to a few more multitracks until I am happy with the overall sound, ensuring the vocals are sitting nicely. All the while I'm taking into consideration an empty venue, as we try and envision what will happen to the sound once the audience arrives.

For smaller shows, I do use Smaart for aligning speaker arrays and delays to get what I want out of the PA.

**Has the audio Industry changed much in your lifetime?**

Definitely. The quality and sound of the rigs just keeps getting better, as well as the tools and functionality that are available to help you achieve the result you want from your PA. I know many people have these nostalgic feelings about how things were, but the technology in speakers these days has come a long way.

**What advice do you have for up-and-coming sound techs?**

Experiment. Learn the soundscapes, and listen to a lot of music that you are going to be mixing, paying careful attention to how instruments sound and where they are placed in the sound canvas. Play that music and get used to hearing it until you have intimate knowledge of the genre. Then go and mix a track and try to get it to sound as much like the recording as you can.

**On the flip side what advice do you give bands?**

Always be nice and respectful of people, try to learn how to communicate what you want. Many musicians do not know how to communicate what they need in their monitors, or even what they want at front of house.

Try not to point amplifiers at people; point them at yourself or beside you. It is always an issue in smaller rooms where the amp is facing your legs and you think it is not loud, but it is blaring at the audience. It is even worse if it is pointed straight out at the front of house guy. You need to remember he will not be mixing using headphones, he will be adjusting the mix according to what he hears coming from stage and the PA.

**Most memorable tour?**

There are several, but it would have to be this latest Tina Arena Australian 2021 Enchante tour. The quality of the sound is exceptional, the people are great to work with, and everything else is on another level altogether.

This tour is a true cinematic and auditory experience. The quality and calibre of the musicians, and the sound imaging you get from the d&b PA is so wonderful.

But my biggest and fondest memory would have to be the Fire Fight concert in February 2020 at the ANZ Stadium, where I had front of house duties for Tina Arena in front of 80,000 people. That was truly an amazing feat in itself, the RF coordination, the number of bands and more was phenomenal. Tina had the whole audience in the palm of her hand, and it sounded incredible.

**Most forgettable tour?**

That would have to be my first tour in the 90s where I was dropped right in the middle of it and I did not know much about PA systems or anything like that. It was baptism by fire.

**Let's finish off with who is on production, lighting, vision and video duties.**

On this tour I have been blessed with an incredible production team led by one of Australia's best Production Managers, Colin Skals, that gives 100% every night. They are; Peter Rubie of Peter Rubie Event Lighting, lighting techs Scott Black, Jeremy Dehn, Daniel Callaghan. On video duties we have Mathew Silk from BAAC Lighting who have provided the projectors. Rickie Rae on monitors, the stage manager Jase Clarke with Ryan Phallis, who sets up the monitors and staging. Boden Birkett from JPJ Audio and John Hall for rigging and tuning the PA system. Our Creative Director Matt Sharp and a whole bunch of very talented Australian production people and obviously the wonderful voice I get to mix, Tina Arena.

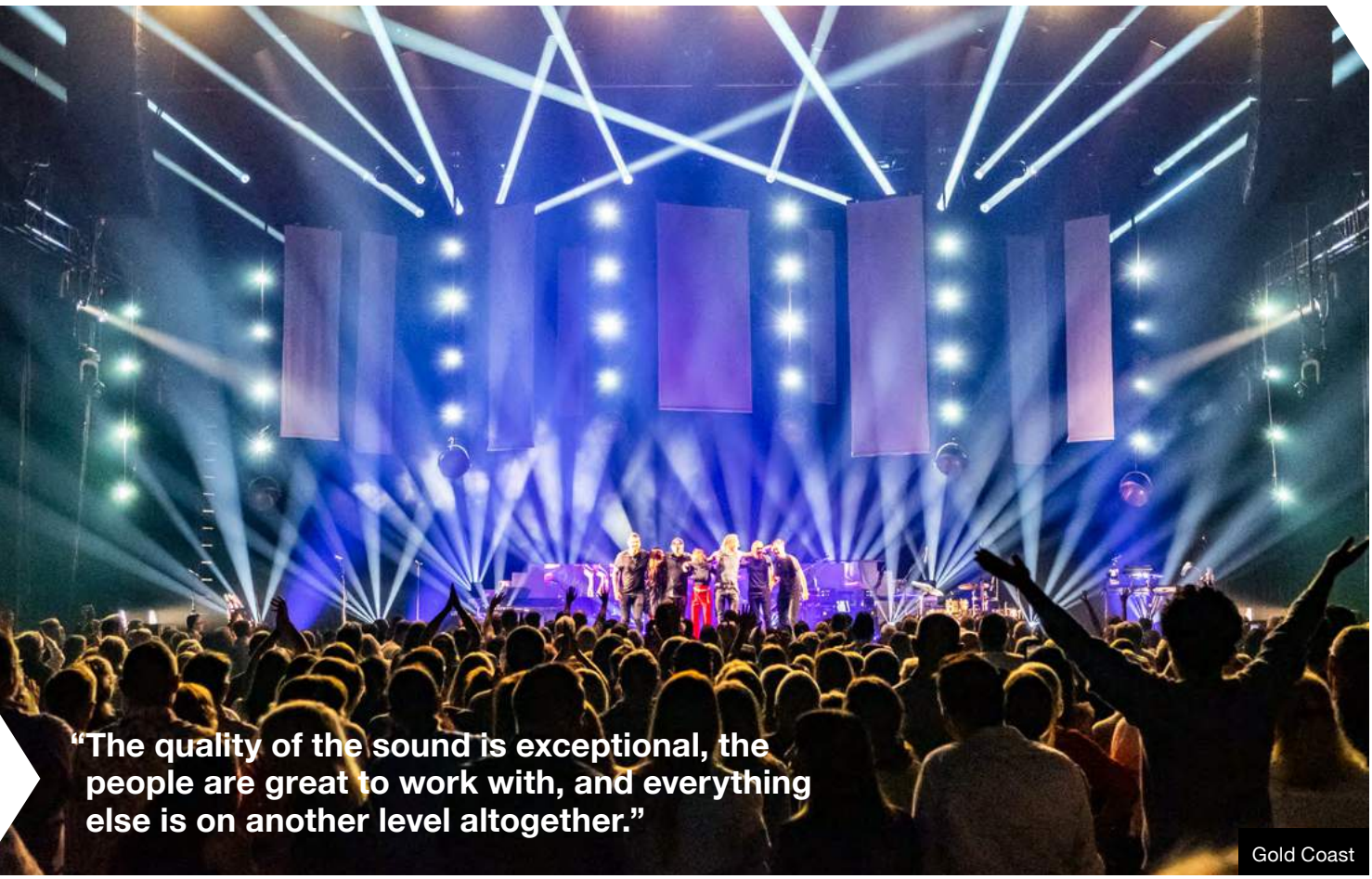
**Any final thoughts?**

An exciting element of this tour and what I hope will be a continuing trend in showcasing live sound and production talent and capabilities worldwide, is to bring to the world this highly successful tour by live streaming the Perth leg.

I will be supplying a full mix to the OB van from my S6L console with added processing (multi band comp C6 and a limiter L2) with some extra audience microphones to mix in some ambience to give it a real live feel. SMPTE time code is also being supplied so that the director has an idea which part of a song we are in and when Tina is going to be singing.

It is a multi-camera video production stream using a new commercial grade live video streaming service called EMusic. A joint venture between Triplay inc who owns Emusic and 7Digital, a cloud-based live streaming platform who host highly successful live stream events for many artists, both nationally and internationally.

Given the current limitations around international touring, it allows for Tina to truly showcase her performance to her millions of fans around the world.




Gold Coast

# Lighting DMA's Global Online Concert

## by Jason Allen
## Photos by Dara Munnis. IG - @daramunnis

**With almost 10 years on the clock as a touring band, Sydney Britpop revivalists DMA's wanted to give something back to the fans to celebrate. But with a huge following in the UK, and with travel limited to within Australia (on a good day), what to do? With a cross-continental effort, the band along with UK management put together their 'Global Online Concert' for streaming platform Stabal, with all tech and production entrusted to Australian crew in Sydney.**

David Fairless of lighting design firm Colourblind is DMA's regular touring LD, so was a natural fit to design and operate the show. "The DMA's and Crosstown Concerts organised the show to be streamed and sold on Stabal, who have been organising UK shows for an online audience," says David. "Crosstown wanted us to do the show in Australia, with all local suppliers and full creative control, so it was up to all of us on the ground in Sydney to pull it together."

Working with UK management remotely, David and the team organised the rig, found a venue, and set to work. "The venue chosen was Carriageworks," relates David. "We bumped in four hours after The Voice bumped out, which Colourblind's Technical Director Lynden Gare was working on. It was a matter of one Colourblind truck closing while another opened."

David worked closely with Joey Sadler of Light + Dark Creative, out of Toronto, Canada. "Joey is living in Australia at the moment, and he was looking after key lighting," continues David. "He made sure the light on the band members always looks well balanced so I could focus on the looks in the show. We worked really well together to put the attention into the show where it was needed. Having Joey there looking after key and intensity meant I could hit the cues and balance intensity into the camera. It was one take of each song, jumping all around the set, so we needed to be at attention the whole time."

Lighting for streaming is of course very different than lighting for a live crowd. "You want to make sure that what's being shot has some lighting effects in the background that draws the attention of the viewer," explains David. "For me, that meant incorporating lights around the space and behind each member, to create interesting looks no matter where the camera is shooting from. Cameras

are roving with no set positions so we needed to have an interesting shot everywhere and from different perspectives."

Aesthetically, David drew on his experience with DMA's on the road. "I wanted to keep a consistent look from their live show. For the stream, we used fixtures we have had on previous shows spanning the last five years, but used them in a different way. This design also compliments what we have in store for the upcoming headline Australian tour. We then incorporated other elements in the set that would look good for camera. Placing fixtures low on ground and shooting up instead of straight into lens and tricks like that helped in producing this show".

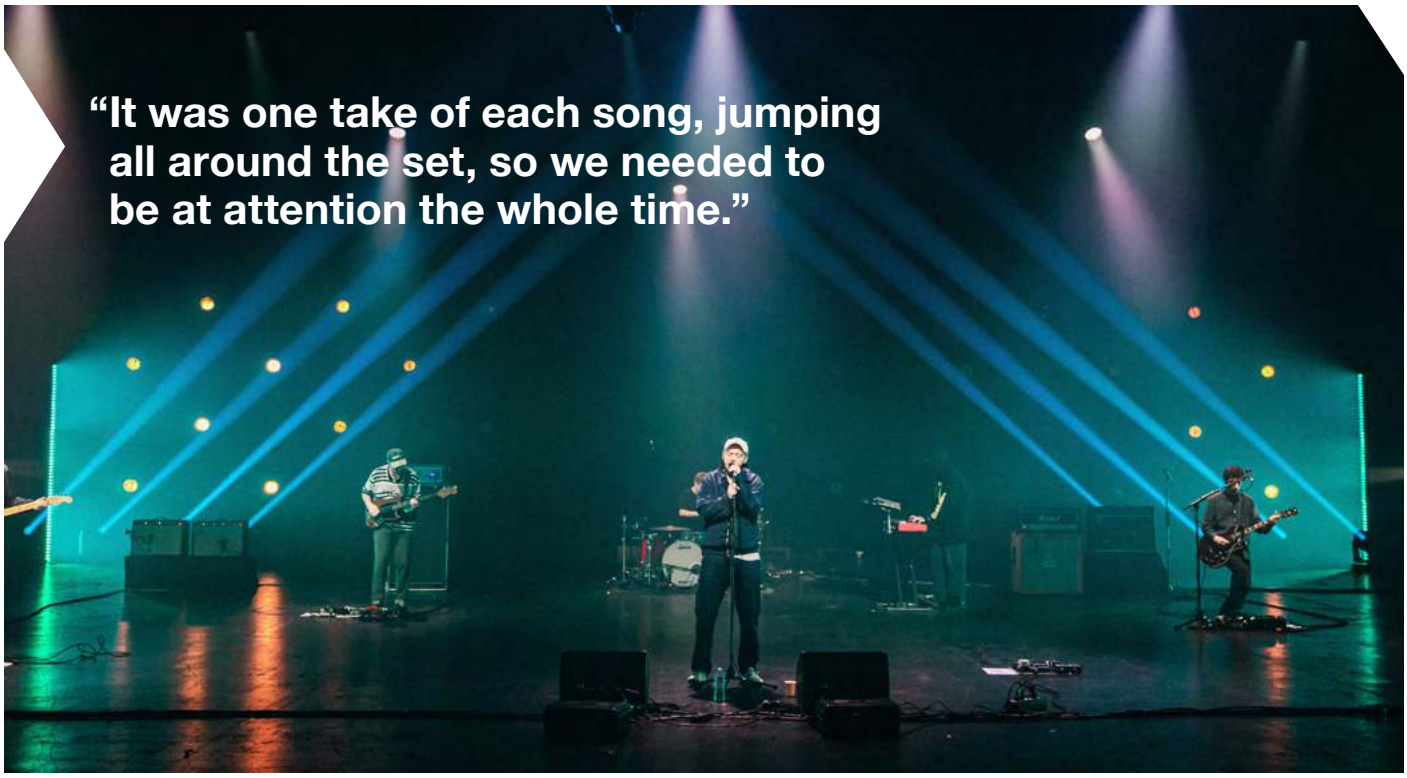
A highlight of David's design was the use of 34 old school Par Cans, dimmers and all, rigged as a wall upstage of the band. "I had them fairly spread out, and on an angle, which really opened the doors for looks with just the array of Par Cans itself," he elaborates. "One look would use just bottom row, another look would use them to create a triangle, then I'd use angles and leading lines that point in towards the band. It's a great way to use a solid, one channel fixture. I was challenging myself to get as much as possible out of a wall of Par Cans."

Other fixtures in the rig included GLP impression X4 bar 20s, and Martin MAC Vipers on the floor. "We also had star cloth, which was a standout for me," adds David. "You didn't know it was there until it turned on, and we had a 'starry night' look for a downtempo song." Control was via a grandMA2 light and grandMA2 full-size. All lighting was supplied by Chameleon.

"The team in the UK really put their trust in all of us on site in Sydney," David concludes. "It was 3 am in the UK during the shoot, and there were a couple of reps on call discussing things and making sure everything ran to time, but creatively, it was a total handover. As soon as we were done, it was uploaded to the UK, edited a little, and approved by management. It was sold as a live concert, and aired in Australia first at 8 pm, before being aired again in the UK 8 pm their time."

**Crew Credits**

Brad Fulton – Guitar Tech
Alex Nichol - Stage Tech
Monitor Engineer - Brendan "Bloss" Keane.
Director of Photography - Joel Black
Camera Crew – Tommirock





by Louise Stickland
Photos by WHITEvoid

# DARK MATTER

## Gallery Launched in Berlin

**Dark Matter is a brand-new permanent exhibition space for lighting, visual and sonic art, and technology in Berlin's lively Lichtenberg district, currently comprising seven unique sculptural and kinetic visual works created by light artist Christopher Bauder of WHITEvoid.**

This experience, which opened last week, is the long-term brainchild of Christopher and his quest to curate a "parallel cosmos of expansive lighting installations blurring the boundaries between real and digital worlds" capturing and stimulating emotional, spiritual, and imaginative journeys as guests embrace the artworks, some interactive, some reflective, all fascinating, engaging and experiencing a wide range of emotions.

Robe lighting is delighted to be involved in this project, initially with the supply of Tetra2 and MegaPointe fixtures which will be used for special events lighting in one of the large exhibition spaces, Hall 2.

The seven pitch-black rooms making up Dark Matter, in three buildings on a one-way walkthrough route, are part of a former factory building acquired by Christopher in 2019 and extensively renovated and converted into this vibrant and thought-provoking presentation space over the last 13 months.

Achieving sufficient blackness was fundamental to encouraging guests to leave their real worlds and dive into a different dimension where abstract meets imagination in an intense and all-encapsulating psychological journey, triggered by light and sound, vision and hearing.

Dark Matter has been a major lockdown mission for Christopher!

The art pieces range from "The Tone Ladder", a playful concept originally designed and built in 2001 whilst Christopher was a student at Berlin University of the Arts, to the most recent, "Inverse", which has been bespoke imagineered especially for Dark Matter.

The 32 Robe Tetra2 moving LED battens are rigged in the roof of Dark Matter's second event space which also houses exhibits "Bonfire" and "Polygon Playground". They will help energise the room when used for events and special shows.

The extended space has an original timber framed roof with spectacular beam-work, so the Tetra2s are aligned along each side of the long walls to highlight the intricacies and geometry of this roof structure.

"We wanted this fixture for general lighting and for its creative potential," explained Christopher, "for captivating effects like pixel waves and moving shafts and curtains of light".

The MegaPointes are being used as "Moving Lights" in a double sense, since they are moving up and down attached to KINETIC LIGHTS' latest powered cable winch development WinchXL.

Christopher has regularly used Robe Pointes and MegaPointes in his recent large-scale lighting installations, most notably SKALAR which has toured internationally and Apologue 2047/2 which toured China.

The fascinating series of Dark Matter installations start with the stark "Electric

Bonfire

Grid

Liquid Sky

Polygon Playground

Tone Ladder

Sky" located in the first room featuring the raw unadulterated beauty of pure white light, before visitors move on to "Inverse" which is an automated piece, adding the effect of motion although the lighting itself is static.

In the third room, visitors can experience "Circular" which offers the full sensory spatial phenomena of light and motion combined.

The first three rooms are all palpably artificial and all the works inter-connect and communicate, while the fourth space, "Bonfire", is more contemplative and geared towards colour and calm. It exudes a more natural and organic mood with a massive bonfire that looks very real and is accompanied by an authentic 3D soundtrack, making it easy to believe you are in front of a real fire!

The fifth space, "Polygon Playground", captivates with a projection mapped scenic piece in the centre which also starts off the interactivity element of Dark Matter with lighting effects synched to reactive sounds, so people can participate and actively engage in the work rather than spectating.

The sixth room is the largest space and features "Grid", a full-scale sound and light installation conceived by Christopher and computer music artist Robert Henke. "Grid" is a fully immersive experience that captures all senses and includes a HOLOPLOT X1 Matrix Array sound system for delivering incredible and intricate 3D audio.

The final space is "Tonal Ladder", an ebullient and fully interactive artwork where guests create their own sonic and visual experiences by stepping on or touching the different rungs of the ladder, activating different sound and lighting effects to create music or events. Up to six people can play 'light animations' or create micro disco music. It is a totally fun space for people to enjoy and experiment with everything they have experienced and thought about light and sound in the previous rooms.

"It is about pure joy and how to be a creator," says Christopher summing up the final room.

It enables guests to leave Dark Matter filled with new perspectives, ideals of how they can be creative and enjoy the therapeutic elements of lighting and sound as well as how they might look at and experience the natural world around them in completely different contexts!

Music and lighting are utilised to enhance states of emotion, investigation or thinking, and all the installations have a definite technical edge as well as being living, breathing pieces of art.

Dark Matter has been designed and choreographed from the off to appeal to a very broad audience. It traverses all ages from young children upwards, and all backgrounds and experiences. "Lighting and sound can cross every possible barrier and be a universal trigger for a new individual experience, every single one completely different from the next."

It also opens cutting edge technical and creative art to those who might never venture into a conventional gallery space, and this has been a driver for Christopher and the WHITEvoid team, not just at Dark Matter but generally when developing new projects and ideas.

Control for all the installations apart from Tone Ladder is Derivative's Touch Designer, the hazers are from MDG, with video projectors provided by Barco.

Dark Matter is now running as a fully COVID-safe environment with proper social distancing and a safe, regulated one-way system through all the halls. Tickets for the first weeks of operation have completely sold out.

A substantial outdoor area will be landscaped

Inverse

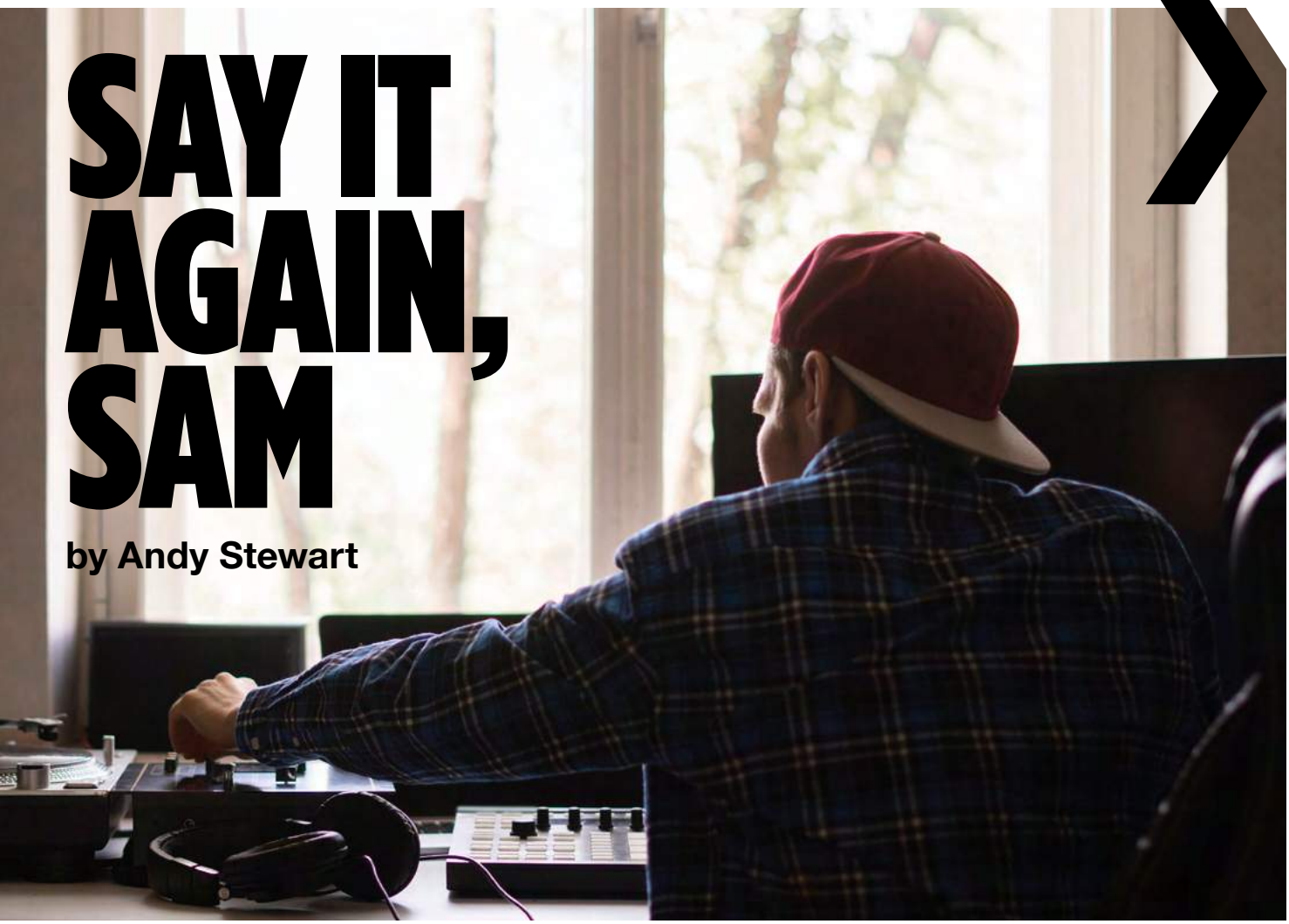
and developed in the coming months signalling that this is just the beginning for this invigorating new environment showcasing technology, invention, and fun.

Harry von den Stemmen, Robe's global sales director commented, "Robe has enjoyed a very good and fruitful cooperation with Christopher Bauder, WHITEvoid and his other venture Kinetic Lights in the years immediately before everything was halted due to the global pandemic, so there is already quite a history and it has been a homage to the art and creativity of the team around Christopher since day one!

"In January 2020, Josef (Valchar, Robe lighting CEO) and I visited Christopher's new premises in Berlin where 'Dark Matter' now stands. As soon as Christopher showed us the plot of land and related his plans, we were 'on fire' with enthusiasm for the new project, and now we are proud to be actively supporting the realization and cementing our cooperation.

"The technical competence and artistic talent of the team behind 'Dark Matter' is super-impressive, and we just love Christopher's creativity and commitment to innovation and pushing all the boundaries all the time! We are certain this project will get all the interest, credit and success it deserves."

# SAY IT AGAIN, SAM



by Andy Stewart

**When you're working alone, and no-one's there to convince or placate, mixing is basically a simple matter of pleasing yourself. You can do what you like with the sounds in front of you, and you're free to craft your masterpiece in uninterrupted silence. But does that produce the best outcome?**

Sometimes it pays to work alone on mixes, especially at the rough end of the process when you're first establishing a workflow, editing things here and there, and developing a basic plan of attack. Everything's still in flux, mixing chains are still being developed and sounds are often shifting radically from one pass to another. When other individuals are exposed to that seemingly random selection of playback levels, they can often get spooked, especially if they're inexperienced at mixing.

I would wager there's hardly an engineer amongst us that hasn't had to turn to others in the room early on in a mix and explain why something sounds the way it does. It's pretty frustrating at times for an engineer, having to explain a thought process early on in proceedings. There are literally thousands of ideas being internalised during a mix, and decisions and judgements being made around every single one of them. If you had to provide a running commentary explaining your rationale behind every course of action, you'd be working on the same song for weeks!

For many engineers, this sort of disruption to their workflow and creativity is actually a deal-breaker. Some have chosen to draw a line in the sand because of it, instigating an 'I mix alone' policy. Others retreat to the hills (like me), where there's less capacity for others to just 'pop in' to the mix session unannounced. A third group just live with the interruptions day to day, turning into a grumpy old bastard along the way. The rest choose another occupation or eventually wind up with no clients.

## Communicate Your Intentions

But you can't always get what you want, as someone once said. Life is full of surprises.

Let's say, you're an 'I mix alone!' kind of girl or guy. And by way of example, let's say you've been producing a record for months now with a solo artist called Fred Nerk. Fred is well aware by now that you don't like being interrupted all that much during the early part of a mix. You talked about that months ago, well before you pressed 'record' and now it's day four of the mixing sessions.

You're working pretty much in silence apart from a bit of random chit-chat with Fred, but Fred is sensitive to your needs and he's happily sitting on the couch reading a book, respectfully popping out occasionally to take a phone call.

Suddenly, five people turn up unannounced to the studio, three of them are Fred's friends (Tom, Dick and Larry); two others are their work mates who don't know Fred and haven't been in a studio before. They breeze right past the 'I Mix Alone!' policy hung in the foyer

like a gold record, and announce their arrival like it's party time. Everyone's carrying snacks and drinks, and already the two mates are marvelling at all the gear and twinkly lights. One of them is on a video chat, filming their grand entrance live to an unknown third party, and the focus and tranquillity shatter simultaneously.

Sound familiar?

This sort of thing happens in studios all the time – always has. Surely by now no-one in this industry expects their working environment to function as silently or strictly as the State Library? Fun does still play a pivotal role in studios, let's not forget… unless, as the engineer in this scenario, you have finally shrivelled like a prune and lost all memory of why you got involved in this caper.

But wait, and getting back to our example… there's more!

Back in the control room, everyone makes themselves a little too comfortable, and both you and Fred are too taken aback and confused by what has transpired to react in an assertive manner. Polite conversation ensues.

Eventually, chitchat about how cool studios are is pushed aside by requests to hear what Fred's new album sounds like…

'Can we hear some of it, guys?'

Next thing you know you're playing a rough mix to the group, using your highly developed body language skills to encourage them to listen in silence (one of the many things you learned during your audio engineering course was that up to 93% of all human communication is non-verbal… oh, you didn't?)

When you hit stop, somewhat unbelievably, instead of polite congratulations, unsolicited opinions start to fill the air, slowly at first but then with more vigour and attitude. Worse, most of this seems to be coming from the two mates of the mates. In your head, you're screaming out: "Who the f**k are these guys? They're not even supposed to be here!"

This is where the true art of professional mixing lies… in remaining calm under pressure and using respectful communication and diplomacy… always. Mixing has far less to do with attack and release settings than many people might think!

## You Can't, But Should You?

The more difficult side of the mixing coin is by far the one where several opinions, tastes and perspectives are constantly being accommodated. Getting a mix over the line that everyone loves – and by 'everyone' I mean the singer, the manager, the bass player, the bass player's girlfriend, the drummer, the record company executive, and her tradie husband who used to be in a band – is exceedingly difficult. It's not much fun either.

But mixing on your own, without clients (or anyone else) present, has its shortcomings too, and for several reasons. In the same way as a sportsperson needs a coach to push them that little bit harder, so too a mix engineer can almost always benefit from the pressure a client can apply to a mix. There are all kinds of permutations to this relationship, of course, but the principle nevertheless holds true.

Provided there are healthy levels of communication and respect flowing between the mix engineer and the client (or clients), there is no reason why the mix can't substantially benefit from another informed, invested opinion. I specifically use these last two adjectives here, because it's important that the mix be debated amongst people directly involved in the music, not an uninvited guest, or guests. Sometimes these stray individuals will accidentally provide some fresh-eared insight, but more often than not their input only tends to sow doubt in the mind of the client, and when that happens there's no upside.

## The Mix Correspondent

In my estimation, the best mixes are made somewhere in the large grey area between solitary mixing and the clichéd '80s notion of mixing while a party cavorts around you.

But unfortunately, in 2021, mixing has become a predominantly clientless exercise now anyway. Global circumstances have seen to that.

For my part, I'm always eager to have clients here at The Mill for at least some of the mixing I do, for all the reasons I've just outlined, but even that's becoming a rarity now. The modern method seems to be: mix alone, send mix files out the door via digital carrier pigeon, email the clients a precis of what's been done and where I think the mix is at, and wait for a response.

Sometimes this method is quite effective, but more often than not, it ironically opens the door to a giant raft of correspondence between individuals who are either more – or mostly less – capable of expressing themselves via the written word, which can create confusion, disagreement, and ultimately mixing malaise.

So clumsy is the group email exchange at times that you could be forgiven for thinking that we'd all be better off back in the analogue domain where the mix ended with everyone present, you printed it to tape or DAT and lived with the consequences.

In many ways, this whole approach to mixing via correspondence has become a slow, somewhat unsatisfying one. Moreover, it potentially lacks a couple of crucial ingredients that make a mix great. You never stop hearing about the concept of tracking a good band live in the studio, and what's intangibly missing if those same individuals played one part at a time as a bunch of overdubs. So it is with mixing. It's hard to put your finger on exactly what's absent… but something is.

The downside of the world we currently inhabit is that most mix engineers now need a university degree majoring in English (which, fortuitously, I have!) to communicate effectively with their clients. The upside is that when you go back into the studio, all the queries about the mix are there in black and white, for you to address one at a time like a shopping list.

My advice about good ol' 2021 is this: don't let it turn you into a 'mix alone' engineer. Do your damnedest to communicate with everyone else who has a vested interest in the project, even if it seems unwieldy and slower than a traffic jam. The mix will always benefit from their input.

Good luck.

Andy Stewart

Andy Stewart owns and operates The Mill studio in Victoria, a world-class production, mixing and mastering facility. He's happy to respond to any pleas for pro audio help... contact him at: andy@themillstudio.com.au or visit: www.themillstudio.com.au


# OUTLOOK FOR THE POST-COVID WORKPLACE

presented by Barco

**2020 brought us the biggest shift ever in working culture and technology. After a strange year in our careers, a year of home office, days filled with virtual meetings and remote chats with co-workers, we are ready to return to the workplace.**

Thanks to the vaccine rollouts worldwide, employers and employees are becoming more confident about a back to office scenario. As the workplace continues to evolve and shift between remote, in-office and hybrid work models, companies start to prepare their office spaces for a well-balanced return to the office. In this research we wanted to explore how business leaders can welcome workers back in a safe, inspiring and productive workplace. A renewed workplace, that will embrace hybrid and blended work models and that will be substantially different from what we knew pre-covid.

How and when can we expect to get back to the office? Can we boost meetings again and get away from the overload? What drives the employee to return to the office? Is it the type of meeting they are hosting or the better access to technology present in offices? What are the investment priorities when it comes to enabling better (hybrid) collaboration and videocalls from the office?

In short, what are the trending topics in work and meeting that business leaders can simply not ignore? Since employee expectations have changed significantly and people are craving for a flexible and autonomous working life, enterprises will clearly benefit when putting the employee at the heart of collaboration. Employee engagement is the new productivity, as you will discover.

**The 5 key work trends that are constantly evolving in the new era of work:**

- Growing office optimism
- Meeting Barometer takes a plunge as people struggle with virtual and hybrid
- The search for more engagement is driving us away from virtual
- The laptop is our interface to the world
- The employee-centric workplace

## Trend 1 – Growing office optimism

A year ago, the general feelings towards office work had taken quite a turn. During global lockdowns, people were bound to the home office and some even claimed that working in an office building would become a thing of the past. But a couple of months into the pandemic our 2020 Meeting Trend Research showed that the downsides were starting to outweigh the benefits for many workers. Zoom fatigue, balancing between office and domestic tasks, home schooling children and missing the social face-to-face interactions

started to take a toll on all of us. And now, one year after this manifest workplace disruption, the market is showing the first signs of a slow, but actual return to the office.

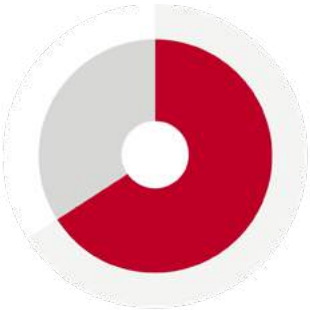
Surprisingly, it is not only C-level management requesting employees to return to the office, but employees themselves are signalling that they are eager to return. In fact, 50% of the workforce already comes into the office on occasion. Australia and France appear to be at the forefront of this trend, with respectively 82% and 61% of employees, having already (partially) returned. Predictions are that another 22% of employees will be able to visit the office by the end of June. This means that by then, 72% of the workforce will be back in the office (one or more days a week).

This might give the impression that employees are ready to give up the flexible way of working that they got used to since lockdown periods. The opposite is true. Employees want to be free to choose whether they work from home or from the office. Although 78% prefer to work at least one day a week in the office, 90% want to be able to work from home as well. The ideal workweek balance has shifted in favour of the office. In September 2020, people were still more optimistic about working from home and employees indicated that the ideal workweek would be 2 days at home and 3 days at the office. Today, the desire to work from home has dropped to 1.5 days a week, with employees preferring to spend more time, 3.5 days per week, at the office.

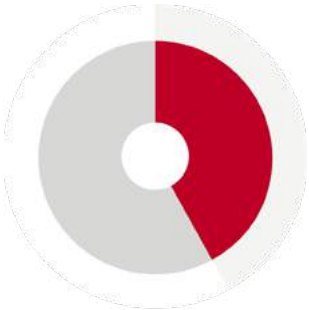
**56%**
are eager
to return to the office

**72%**
will be back in the office
one days or more
by end of June 2021

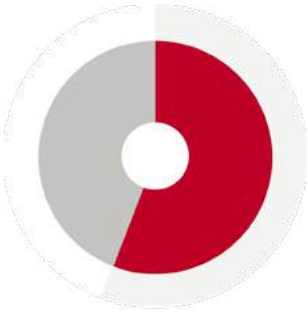
We want to work **more**
from the office
than 6 months ago
(3 days in 2020 - 3,5 days in 2021)



**66%**
say their CEO wants them
to return to the office



**42%**
feel pressured
by their manager
to return to the office



**56%**
wants to get back
to the office now

## Preferred balance home versus office

**3 days**
in the office
in 2020

**3,5 days**
in the office
in 2021

**2 days**
home office
in 2020

**1,5 days**
home office
in 2021

# Trend 2 – People are struggling with virtual

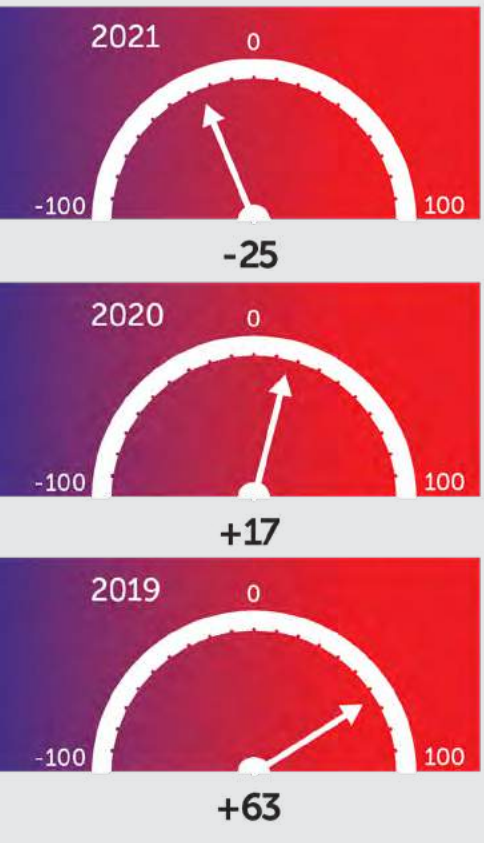
The Barco Meeting Barometer has dropped significantly after one year of COVID. In September 2020, employees were still carefully positive about meetings, resulting in an index of +17. Now, the score has descended to -25, uncovering a growing frustration with virtual meetings in general.

In the 2020 Meeting Trends research, 49% of respondents admitted that remote collaboration does not come naturally to them. What's new is that not only purely remote meetings evoke negative feelings, the quality of hybrid meetings also seems to be under pressure.

One thing's for sure: we are returning to the meeting room. In the future, we'll see more hybrid and less virtual meetings. Another change in mindset and meeting culture that starts with the right tech. 4 out of 5 believe that simple, easy-to-use technology can eliminate friction with meeting room set-ups and can restore confidence in meetings. Employees just want to walk into a meeting room, connect automatically to the tech available, and start working and collaborating in an instant.

## Meeting Barometer

Meeting comparison with 2019 and 2020. People believe meeting have improved or not




**49%**

admit that remote collaboration does not come naturally to them

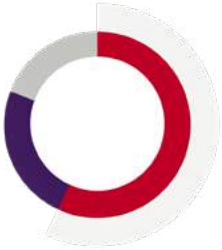
**80%**

believe easy-to-use tech can make meeting better

## Meeting tech challenges

**57%**

think it is a hassle connecting the cable of the meeting room display

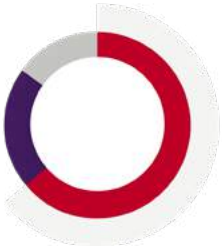


**26%**

find it easy to connect to the meeting room speakers and cameras

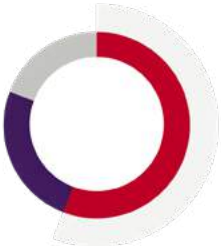
**64%**

agree it is challenging to move between meeting rooms where the set up is different

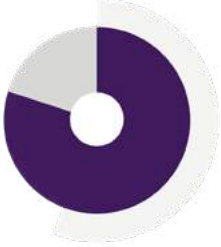


**56%**

don't know what cable to pick when multiple cables are present in the meeting room

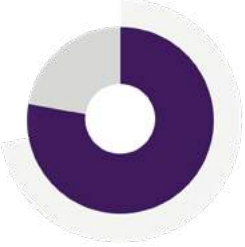


## Importance of usability



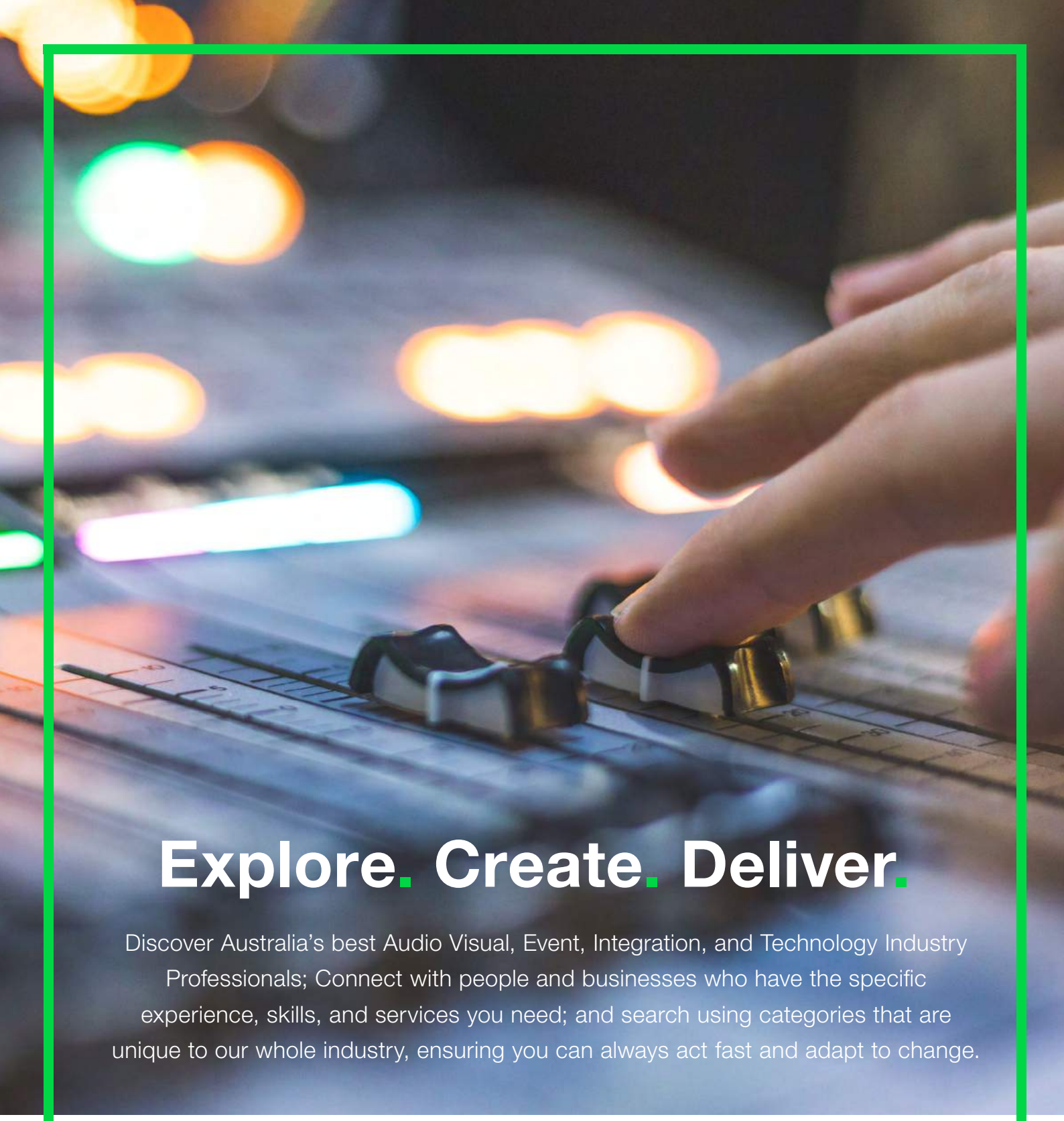
**80%**

believe easy-to-use technology can make meetings better



**78%**

wish they could simply walk in the meeting room and join the call without having to connect cables



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## Trend 3 - The search for more engagement is driving us away from virtual

In 2020, our research already showed that low engagement was the primary cause for meetings getting worse. Microsoft's Annual Work Trend Index Report says: "While some of the isolation will ease as the pandemic subsides, the likelihood of ongoing remote work means that feeling included and engaged at work will continue to be a challenge — especially for those new to the workforce.

It's precisely this need for engagement and connection that makes employees want to get back into the office and reduce the number of virtual and remote meetings they attend daily. Our latest research shows that the return to the office is driven by three essential reasons: the wish for social interaction, higher productivity on the work floor and more efficient meetings thanks to the available technology.

We discover a rise in the number of meetings held in the office. Due to the pandemic, the number of in-person meetings went down from 47% in 2019 to 25% in 2020. Employees anticipate however that once the pandemic is under control, in-office meetings will return stronger than ever with 81% of all meetings being hybrid. In fact, meetings are the biggest reason for coming into the office, even today. When hosting a meeting, half of employees take a trip to the office to host calls in a more professional setting, with less distractions and access to better tech.

### Reasons to return to the office

% selecting each factor

**51%** Being able to socialize with my colleagues

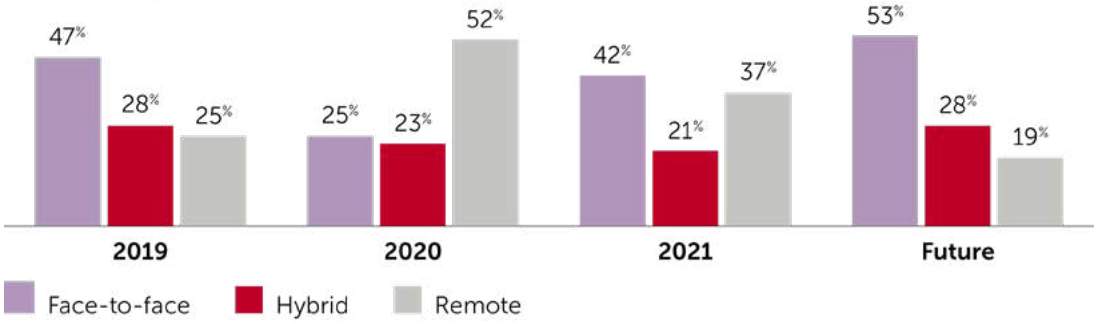
**39%** Higher productiviy when working from the office

**38%** More efficient meetings

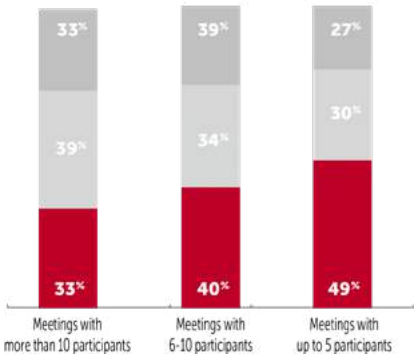
**34%** Getting access to better technology

### Split face-to-face, hybrid and remote meetings

% of meetings




### Meeting preference per #participants




### Meeting preference per activity

## Trend 4 - The laptop is the interface to the world

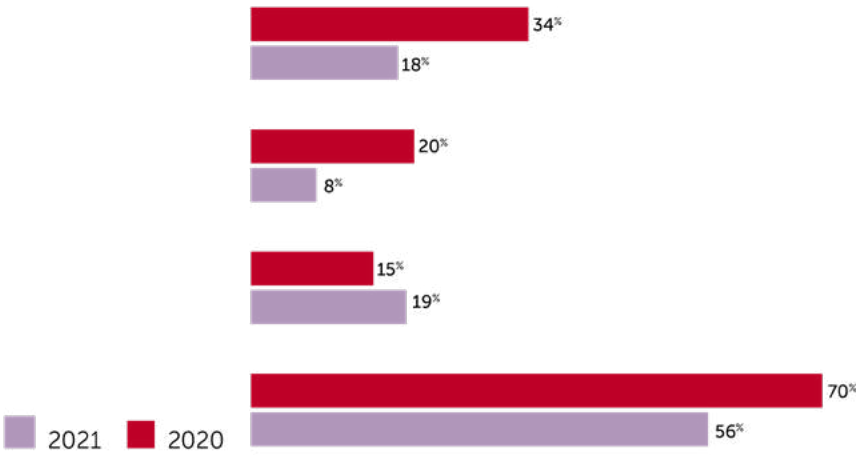
2020 was without a doubt the year of the laptop. During lockdown, our laptop was what connected us to the rest of the world. We used it as a work tool, to collaborate with colleagues or take classes, but also for leisure: watching Netflix and staying in touch with friends and family. White-collar workers in particular became glued to their laptops from dusk till dawn.

According to the Microsoft 2021 Work Trend Index Report, the time spent in Microsoft Teams more than doubled and the number of people working on shared documents increased with 66%. Zoom was downloaded over 485 million times in 2020, an increase of 30 times in comparison to the 16 million downloads in 2019.

The laptop will remain just as essential in meetings when we return to the office. Traditional in-room meeting tech no longer fits employees' needs. Instead, workers embrace the Bring Your Own Meeting (BYOM) trend, hosting calls from their laptop just like they're used to. The popularity of BYOM has increased significantly from 56% in 2020 to 70% in 2021. It's all about ease-of-use: stepping into a meeting room, employees want to connect automatically to the meeting room tech from their own device and collaborate without wasting time. The laptop, not the room tech, is the heart of the meeting room eco-system.

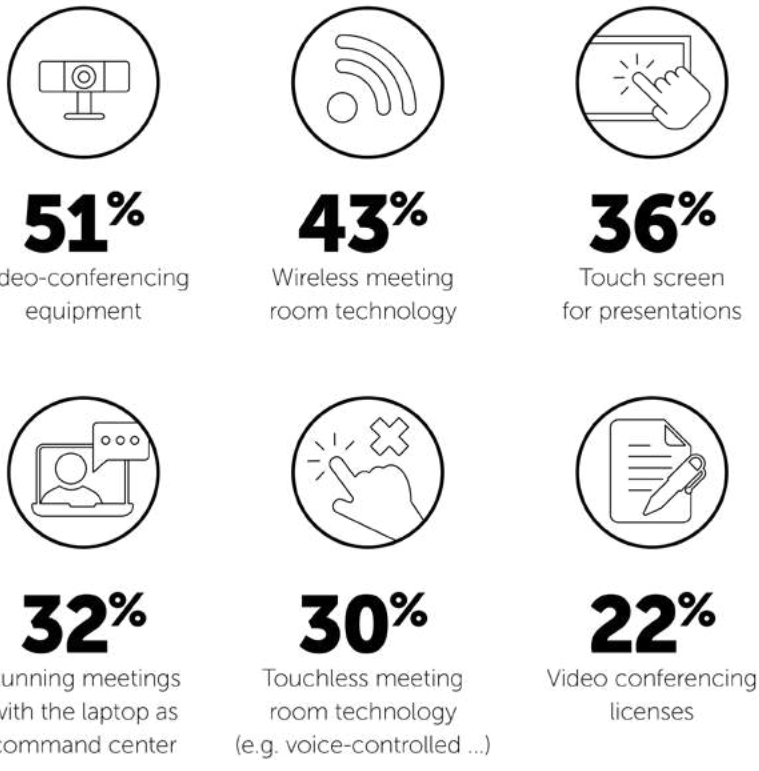
### Prefered device to host video calls

% selecting the device




### Investment priorities (according to employees)

% selecting priority




**70%**
prefer BYOM
(versus 56% in 2020)

**78%**
wish they could walk into the meeting room, connect and start working

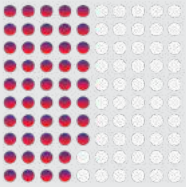
**77%**
think all meeting rooms need to be equipped with VC technology

## Trend 5 - The employee-centric workplace

While companies are rethinking the workplace, employees are doing the exact same. A year ago, their lives were suddenly turned upside down. No more commute or social obligations, and basically a lot of time to reflect on their personal and professional life. Workers were re-evaluating what they want and pondering questions. “Am I still happy in my job? Do I want to re-enter the rat race? What are my ideal office hours? And where do I want to work?” Burnouts and bore outs were not eliminated by quarantines.

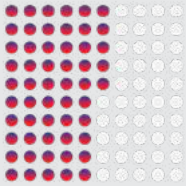
And it doesn’t stop at questions, many are also taking actions. According to Microsoft, 41% of workers intend to leave their current employer within the next year. Employees are raising the bar and expect more from their employers. They want flexibility, ideally working from home 1.5 days a week and in the office 3.5 days a week whenever they prefer. Moreover, employees don’t want to be told which tools to use to host meetings. They want the freedom to use their own preferred tool and usually that’s their laptop. And they prefer a hybrid way of working, easily shifting between in-office and remote for a particular type of task or meeting.

This means that each employee enters the workplace with a set of expectations. What those are exactly, varies from one employee to the next. This Barco Meeting Trend Research reveals that there are strong differences across generations, gender, department and seniority level. People in IT, for example, want to work from home twice as much as those in the operations. Generation Z youngsters at the start of their career prefer to work more from the office than senior management. Baby boomers show a strong preference for face-to-face meetings and hosting a call from their laptop, whereas millennials prefer a hybrid way of working and are open to use both their laptop and smartphone to host meetings.



**48%**

find it difficult to connect to the meeting room



**65%**

struggle with trying to figure our different set-ups when moving between rooms

### The workforce demands flexibility

**1,5 days**
work from home

versus

**3,5 days**
work from office

**70%**
want to host calls from their laptop

**90%**
want a hybrid way of working (mix home and office)

## Looking Ahead

In short, we talked about growing office optimism, people struggling with an overload of virtual at home, the search for more engagement driving people away from virtual, the laptop being the interface to the world and the future, people-centric workplace.

Today, it’s still unclear how and what the hybrid workplace will look like exactly. Fact is that we will not just go back to our old-ways and that we will not stick around in our present-day, virtual habits either. We’re creating a new, ever-evolving hybrid work model as we move forward. Carefully balancing between employee needs, business goals and safety measures, we look for ways to bridge the gap between in-office and remote workers and allow for productive collaboration. And while we’re shaping the workplace of the future, we gladly give business leaders these three basic fundamentals.

## Time to reconnect

Employees have spent the majority of last year working remote, often feeling disconnected from co-workers and company. People are eager to return to the office in search of social interaction, increased productivity, and more efficient meetings. It’s time for them to reconnect with both the organization and colleagues. Especially since these are important factors for a company’s employee engagement and retention, there’s no time left to postpone decisions. 71% of employees think their employer should start preparing now. Getting ahead and designing the hybrid workplace started yesterday...

## One size does not fit all

Employees expect the freedom to work in their own way. And there are many differences across generations, gender, department, and seniority level. Every individual enters the workplace with a large variety of expectations. Companies need to develop workplace strategies that allow for this kind of flexibility and empower employees to work the way they want.

## Bring your own meeting

We’ve said it before: the laptop, not the room tech, is the heart of the meeting room eco-system. Employees prefer to host meetings from their own laptop (BYOM), and they want to work with wireless & touchless meeting room tech that allows that.
Connection, collaboration, and meeting engagement have set the move to hybrid in motion. It’s time to jump on that train and get your employees to start commuting again. The new, hybrid office will welcome them with open arms (and the right tech!).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# The changing face of events and how AV teams need to adapt to the new normal

## by Benjamin Powell, founder of BetterCast

## I want to talk more about how I see live event production changing in the post-pandemic years, and the consensus from Event Managers and AV teams around the world about the direction of the industry.

Covid has decimated live events for the last 16 months. However, it's birthed a different approach to access to events. The changing process may result in more jobs and services that teams can add to grow revenue, and a level of disability access to events that was never even considered.

The figures that I'm using come from multiple research reports published by the Skift Group, Business Events Australia, Tourism Australia, and surveys I've conducted for BetterCast over the last few months. Over 7000+ event production professionals were surveyed from Europe, Australia, New Zealand, and America. While there may be some slight disparities geographically, globally, the entire industry is going through the same thing.

Many events shifted to self-produced desktop productions, or businesses' marketing managers just created a Zoom call and emailed their client base. On the whole, it was a complete mess, but some lessons were learned.

**Why do people go to events and conferences anyway?**

There are several reasons someone will travel to attend a conference, but it boils down to learning, buying, selling, or working. Most importantly, if they are buying or selling, the event's networking is a significant draw point because if they know that X person will be there and want to get X person's attention, it may be worth travelling.

If I can meet X person in a video call, what's the need to travel internationally? Or even interstate to a capital city? Do you even know if this person will be at the event now, and not just dropping in from their laptop?

With events online, travelling to an event becomes more unnecessary, leading to an opinion that 30% of events traditionally moved to a capital city will stay in their local area, resulting in an uptick in regional events remaining regional.

Other reasons to travel to events are the conference program, papers presented, keynote speakers and workshops, however, none of that is geographically restrictive.

A survey by the Tourism Authority found that the destination plays a part in the travel, but if employers are now allowing more work from home and remote offices, travel to get away from work may start to decline as a deciding factor. It again moves to the quality of the content that drives people to attend events.

**Additionally, it found that travel decisions were:**

1. Quality program content 72%
2. That you can extend the trip into a holiday 61%
3. A desirable destination 60%
4. Opportunities for professional networking 59%
5. Colleagues/Peers you know are attending 56%
6. Lots of activities at the destination 56%
7. Discounted accommodation around the conference 55%
8. Being able to take family/friends with you 54%
9. Contribution to professional accreditation 53%
10. People have recommended the conference 53%
11. Well-known speakers 49%
12. High-profile delegates 48%

**How did events adjust over the last 16 months?**

In 2019, 480,000 business events were produced in Australia, which plummeted to 19,000 just one year later. That is a drop of over 96%, just in the Australia and New Zealand region. Globally, over 49% of events either cancelled or were postponed.

Of the 47% that pivoted to desktop produced events, only 50% of them made any money. It was an easy switch for event managers, however the move to self-produced DIY Zoom events completely dropped the production team, resulting in the sub-par quality product being delivered to viewers.

While 40% of the respondents felt that they could reach a wider audience, 1/3rd felt that their most significant issue was engaging the viewers.

We see that while many opt to produce online, there is very little understanding behind what it takes to make the online production successful. I believe it is up to the visual production teams to lead the charge down the hybrid road.

Creative production of the event video will increase the event's engagement, reducing viewer attrition and delivering a higher quality show. But it also introduces more options for production teams to become critical influencers into the event creative.

Before Covid, 50% of AV teams I surveyed didn't offer live streaming as a service, but almost 80% are now. So now landing the job is about how you can distinguish yourself as THE team to hire and not just A team to hire.

The shift to adding live services to the offering has been fast, with almost 80% using software (OBS) as their central vision switching solution and only 40% opting for hardware. This means that there is a potential for developing more dedicated and sophisticated solutions resulting in employment opportunities working compact hardware-based production rigs.

**What was the result of that adjustment?**

51% said that the biggest frustration was the inability to match the live engagement and experience for event managers. Which makes the most sense, and if trying to replace a two-day event with a Zoom call was the best that they could produce, then there isn't much that they could do to replicate the event.

Data also showed that attendees spent 89% of the total time on even the most fully-featured event platforms watching the content, and guests spent very little time communicating with other attendees.

Only 5% and 6% of the time is spent networking during virtual trade shows and conferences, respectively. This again indicates a significant interest is in content consumption over networking during events. This means the quality of production for the online component of any hybrid event going into the future will have to be at a standard that only exists in broadcast productions.

**What is on the horizon for event professionals?**

61% of event managers believe that they will be hosting in-person events again by Q4 2021, and 70% of event managers surveyed said they would continue delivering online. I think two long term outcomes will increase or decrease this number.

If event content quality doesn't increase and becomes more infotainment-focused, then event streams will continue to see viewer drop-offs, regardless of the amount a ticket cost the viewer. This will lead to event managers, even though they reduce costs with smaller and more locally produced events, forgo online from a lack of viewer interest.

While 42% were prepared to spend up to $5,000 on the event tech and online production, the spend needs to show a positive return and would only increase with viewer numbers in the positive.

**In conclusion**

Two factors are apparent in the data that drove this outcome. First, it seems that event managers assumed that just the words they were saying were enough to engage an audience. The fact that they would lose viewers over the event with a single, locked-off shot of them speaking for two hours, with sub-par lighting and audio, was a surprise to them.

The second factor is that while lead generation and networking are essential to attendees and event sponsors, a critical deciding factor for a guest attending an event is the quality of content they will get. If they know it's a low-quality Zoom call and it's not well-produced, then people aren't going to pay for attendance.

For teams to thrive again and build back to that half a million events a year, it's becoming dependent on the production team to educate the event team on what makes good content and how it can be produced on-site.

I foresee that in every conference event in the near future we will see mini TV production studios built to deliver an engaging experience online. And events that don't put in the effort will lose untold millions to those that do.

BetterCast is doing what it can to develop the tools that can help teams to produce better shows, but only with a focus shift and dedication to outstanding productions will we see growth again in the short term.

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**The future is hybrid - Swapcard - https://info.swapcard.com/hybrid-events-research**

# BOOSTING ENGAGEMENT WITH AUTOMATIC CAMERAS

**With physical distancing and airline travel still challenging, many organisations have been forced to host their meetings in a hybrid style. Hoping to improve the hybrid meeting experience for on-site and remote participants, Sandra Whitaker, IT coordinator at the NSW Nurses & Midwives Association (NMA), sought out specialist audio visual supplier Congress Rental Australia to provide a hybrid meeting solution that could boost engagement. Congress Rental assisted them by integrating an automatic camera solution with their desktop microphone system.**

Before implementing the automatic camera system, the NMA used a static webcam to stream the video to Zoom. They had already implemented desktop microphones for higher audio quality. Still, they wanted a video solution that could both improve the interactivity and image quality for remote participants and integrate with their existing desktop microphone system.

“Initially, we were using a Sony Handicam plugged into a streaming device. We then added a webcam set up in the corner of the room. Although the Handicam worked well to capture the meetings chair, the webcam was far from ideal to provide remote participants with a view of the other speakers. It didn’t seem very engaging and made it difficult at times for remote delegates to identify the person speaking,” explains Whitaker. “We were looking for an improvement to our overall AV setup when we came across Congress Rental’s automatic camera solution. It immediately stood out to us as something that we needed to try.”

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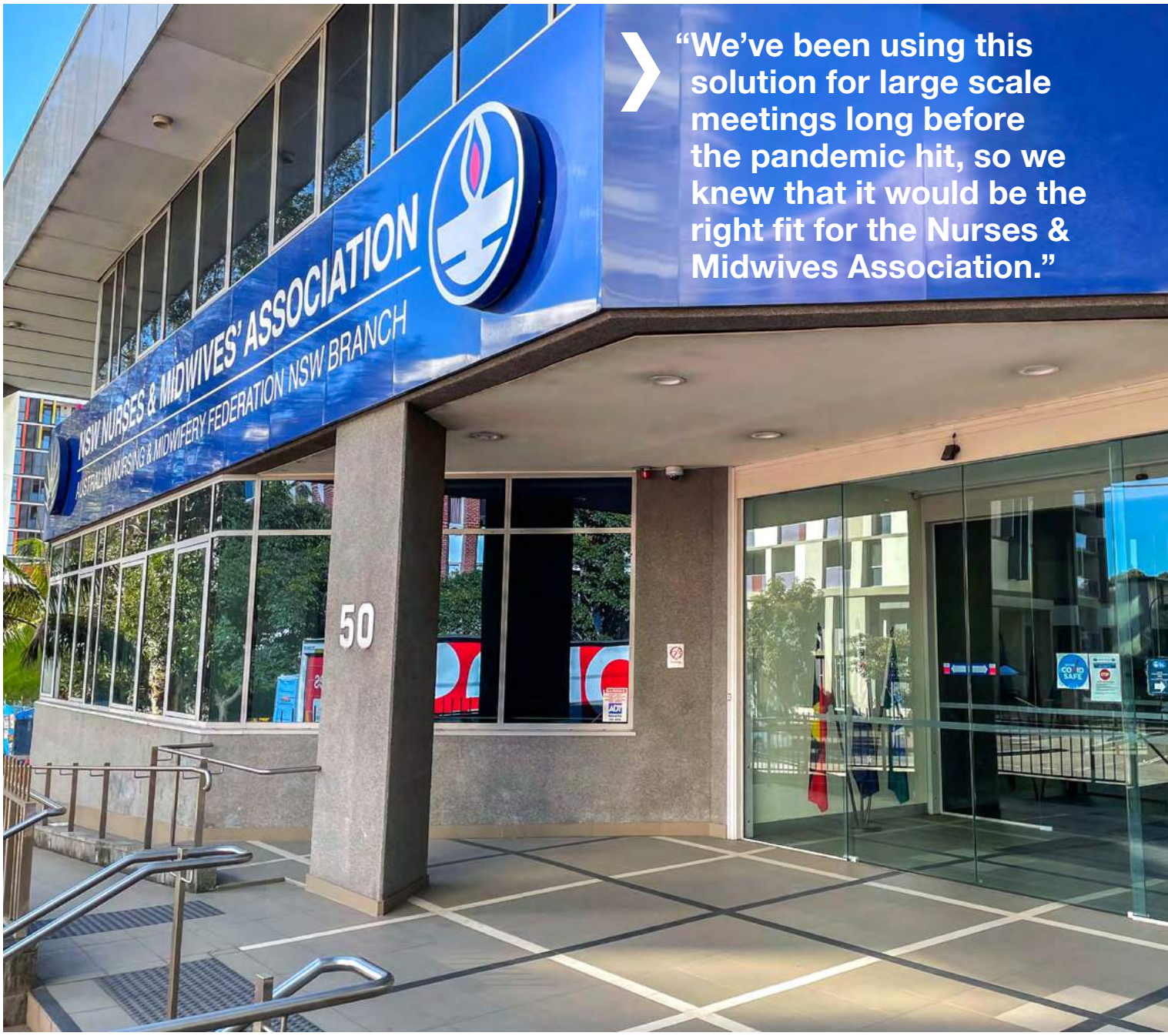



> **"We've been using this solution for large scale meetings long before the pandemic hit, so we knew that it would be the right fit for the Nurses & Midwives Association."**

"Congress Rental supplied us with desktop microphones in the past and the expertise and level of service they demonstrated then made them a natural choice when we were searching for a new vision solution," says Whitaker. "They helped us by guiding us through all of the options available and clearly explaining the benefits and drawbacks of each one."

Warren Williams, Manager of Administrative Services at the NMA, organised their first meeting using the solution. "Congress Rental was very good in helping us set up the solution so that it was ready for the meeting. Their technicians were very helpful and communicated really clearly to us when we had questions," says Williams. "The final system is excellent, and I think the meetings we hold now are more interactive and engaging for both our online and on-site delegates."

"Sandra told us that the participants were tired of the static shot the webcams were giving them, so they were thrilled when we gave them a demo of our automatic cameras," says Sebastian Ennis, Head of Production at Congress Rental. "Our solution integrated automatic cameras and conference microphones (referred to often as desktop microphones) to create a seamless meeting experience for both the online and on-site delegates. We've been using this solution for large scale meetings long before the pandemic hit, so we knew that it would be the right fit for the Nurses & Midwives Association."

The automatic camera system utilises an Avonic NDI PTZ Camera, integrated with Bosch CCS1000 conference microphones through their browser-based software. The Avonic camera was assigned presets based on microphone position through the Avonic software, and this was integrated into the Bosch software through the local network. This is a simple setup designed for the NMA technical department to manage themselves.

The addition of the automatic cameras allows the Nurses & Midwives Association to capture more of the feeling of being in the room. "The automatic camera was very good at solving that. When people speak into their microphones, remote participants get a clear head and shoulders view of them, accurately and reliably every time" says Williams. "I love that the camera automatically zooms to the person speaking, it's like having a personal film crew at every meeting. It adds a level of engagement and interactivity that a static camera wouldn't be able to."

**www.congressrental.com.au**


# Riedel Extends Comms and Signal Distribution Solutions Supporting 2021 Eurovision Song Contest

For the 15th year, Riedel Communications provided advanced intercom and signal distribution technologies and on-site engineering support for the record-breaking 65th edition of the Eurovision Song Contest (ESC). Staged May 18-22 at the Rotterdam Ahoy, this year's broadcast marked the ESC debut of several new Riedel solutions, including the top-of-the-line Artist-1024 digital matrix intercom node and SFP modules from the new MediorNet IP range of signal processing solutions.

Back after a pandemic-induced cancellation in 2020, the 2021 Eurovision Song Contest drew an audience of 183 million viewers across 36 markets, with a live audience for the Grand Final show on May 22 that was an estimated 4% higher than that of the 2019 competition. Riedel supplied a complete solution that included not only intercom and signal distribution, but also accreditation, access control, commentary systems, and a comprehensive IT infrastructure for staff, broadcasters, and attending press members.

In addition to managing radio communications, distribution of images inside the Ahoy Arena, and delivery of audiovisual signals for broadcast and production, Riedel outfitted commentator booths and oversaw communication with the master control rooms in each of the countries that customised the EBU broadcast. In addition, Riedel introduced several COVID-19 prevention measures designed to protect all technical team members and minimize the risk of infection at accreditation and access control points.

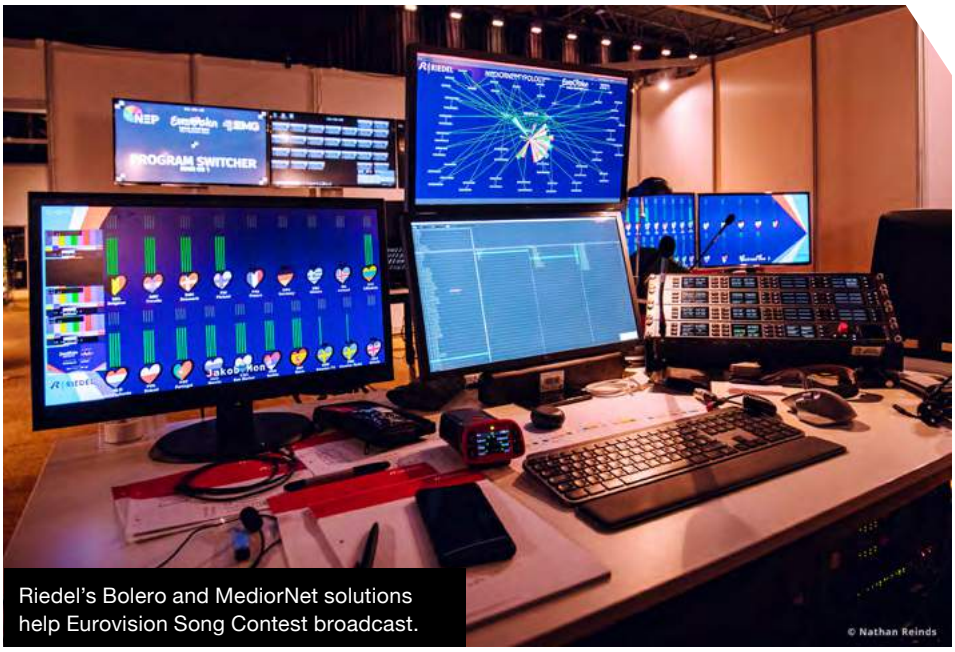
This year's ESC production included 24 cameras together with 130 video feeds, 140 intercom panels, 75 microphones, 1,800 luminaires, five mobile units, a technical operations centre, three support vehicles, and 60 EVS channels, a setup designed to shape a signal that could be seen all over Europe, Australia, and the USA with incoming connections from 40 different countries.

The Riedel Artist-1024 intercom node supplied the highest-possible intercom port density as well as full AES67 compliance, a critical capability, as this year's ESC production was the first to leverage an AES67 audio network. The IP-based signal transport mechanism complementing a 60-node MediorNet MicroN network relied on Riedel's MediorNet MuoN SFP gateway and processing devices and MediorNet FusioN stand-alone I/O and processing devices. At Ahoy, the MuoN modules were configured with Riedel's SMPTE ST-2110-compliant MADI bidirectional gateway app, providing encapsulation and de-encapsulation of MADI signals to IP for commentary. The FusioN devices acted as 16-image SMPTE ST-2110 multiviewers and enabled video distribution inside the ESC commentary control room.

Other key Riedel elements were the 1200 and 2300 Series SmartPanel user interfaces, equipped with software apps to provide additional functionality above their primary purpose as intercom panels. With the powerful MediorNet Control App installed, the 2300 Series SmartPanels gave users flexible routing and control over audio and video signals using the high-resolution, multitouch colour displays and intuitive touch-screen UI. The production also employed 64 Riedel Bolero wireless intercom beltpacks.

To provide and maintain a safe production environment, Riedel followed strict distancing and prevention measures within the bubble and developed a complex accreditation front end and access control system, based on the results of the 26,000 COVID-19 tests administered to all staff, to preserve that bubble. The RFID-based solution included automatic deactivation of accreditations after 48 hours, with reactivation upon submission of a negative COVID test result.

"The Eurovision Song Contest is a complex production, and it evolves from year to year with ongoing improvement to technical and operational aspects, as well as the fan experience," said Yung Min Lee, Senior Project Manager at Riedel Communications. "This year's event presented an array of new challenges, and we're absolutely thrilled with how successfully the whole production unfolded."



Riedel's Bolero and MediorNet solutions help Eurovision Song Contest broadcast.

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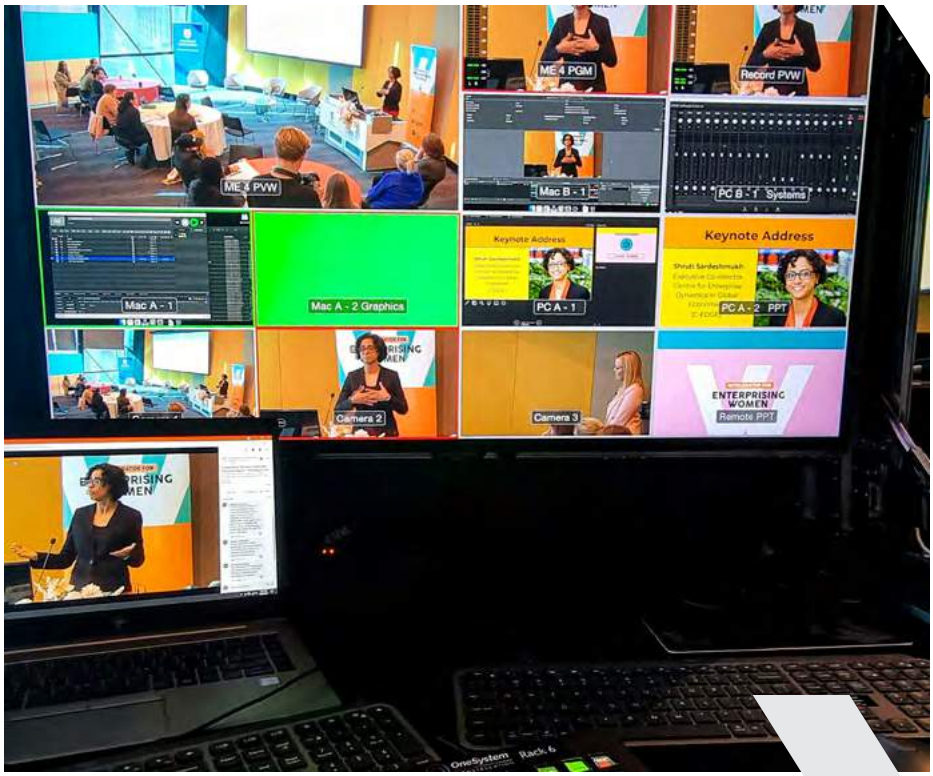



# ONESYSTEM TO RULE THEM ALL

**by Jason Allen**


**A decade ago, which is like half a century in AV technology years, Adelaide's Novatech Creative Event Technology put together an ingenious solution they dubbed OneSystem. It was a custom-built rack on wheels designed to take all the AV tech headaches out of large conferences, in this particular case, large medical conferences with hundreds of presentations delivered across multiple rooms.**

All of the bugbears of high-end corporate AV were addressed; presenters checked their presentations in the support area run by Novatech on OneSystem, which then piped the presentation to their room, also run by OneSystem on an identical rig. All the headaches of differing computers, software, control, and outputs to display were gone. The rig could also record each presentation and upload them to the web for streaming. Novatech's full OneSystem fleet could run 30 rooms simultaneously and worked like a charm.

The original OneSystem did multiple tours of duty around Australia and New Zealand, and ventured to Singapore and Malaysia. Forward to the present day, and the face of events has changed. Remote and hybrid are now standard, as are presenter pre-records and live streaming. The mix of real and virtual is constantly shifting, and OneSystem needed to be redesigned to keep up.

The new rig is now known as OneSystem Constellation, after its new engine room, the Blackmagic Design ATEM Constellation vision switcher, though calling it a switcher seems a little understated. It boasts 40 12G-SDI inputs, 24 12G-SDI aux outputs, 4 DVEs, 16 ATEM Advanced Chroma Keyers, 4 media players, 4 independent Ultra HD multi viewers, standards conversion on all inputs, built-in talkback and a 156 channel Fairlight audio mixer.

"It's a beast!" exclaims Novatech's managing director Leko Novakovic. "Honestly, we didn't really need something that powerful, but now we have it, it has opened up a lot of possibilities. OneSystem Constellation has become the perfect tool for any AV business. It has the power to roll into any corporate event that just needs a switcher and a couple of laptops, or into a 20 camera shoot that's live streamed. There's nothing it can't do. We feel we've designed the perfect workhorse rack."

In a rolling roadcase designed by Melbourne's TransitPak Cases that's designed to fit through a single door, a tilt-up lid holds a 43" 4K monitor that can support a 4x HD Multiview. A pull-out tray holds two keyboards, two mice and other control accessories including an Elegato Stream Deck.

"We've built a bunch of presets for the system and put them on keys on the Stream Deck," explains Leko. "It's simple stuff like, 'switch to that laptop' or screen, or 'multiview option A, B, C, or D'. This is for the simple gigs that just require one operator." Alternatively, big gigs can bring in multiple techs and connect to OneSystem Constellation with external controllers, allowing vision, audio, and broadcast engineers to all work on the same system.

The brains of the system are spread across two Mac Minis and two Windows servers. Every piece of software you could possibly ever want to run corporate audio and video is installed; Zoom, Teams, QLab, vMIx, Office, KeyNote, plus a range of video editors, converters and playback, and control software for the devices in the rack. Recording and playback is handled by two Blackmagic Design HyperDeck Studio Minis.

A Dante-enabled Yamaha TF-RACK digital mixer offers extra analog connectivity, including 16 combo XLR ins and one RCA in, outputting to eight XLRS and eight TRS jacks if required. All of the computers in OneSystem have Dante Via installed, and Dante Virtual Soundcard can be added if required. The TF-RACK can be controlled via an included iPad or by the PCs.

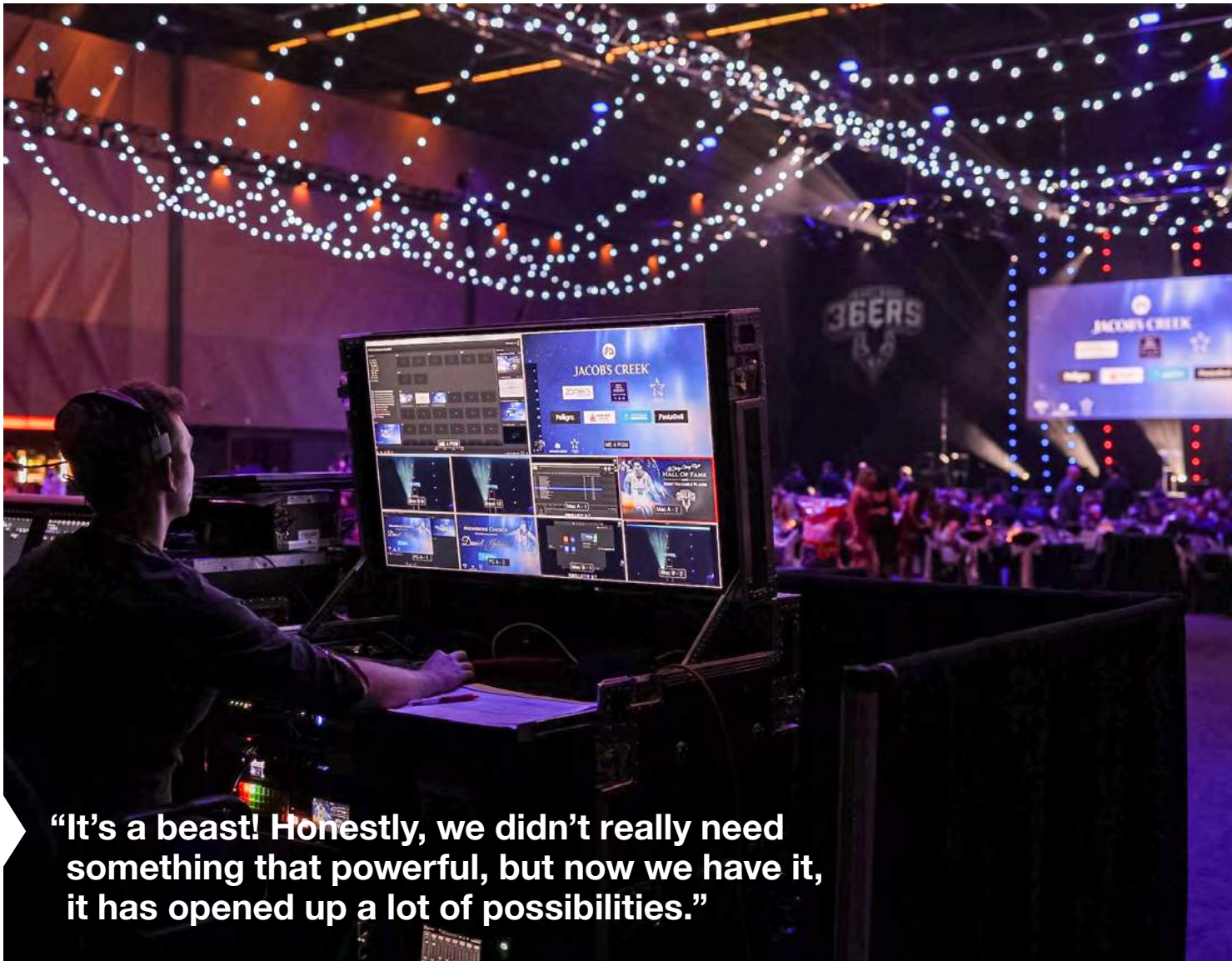
Topping it all off is a full suite of converters to and from NDI and SDI, power options for users including USB charging ports, wireless and wired control for presenters, patch panels for video and fiber, and powerCON input.

Tying everything together is a 10Gb network switch connecting the computers for fast data transfer and media sharing, with a 1Gb switch for the rest of the devices. OneSystem Constellation racks can be linked together via single mode fibre or cat6, and bring in an external internet feed. Each rack also has a dedicated wireless access point providing access to control and utility devices. With all of this internet connectivity and remote capability, OneSystem Constellation can be controlled over the public internet by a tech who isn't even in the same city, let alone building.

"We've estimated that the time for a single tech just to patch up a rig that can do all of this would be six hours," states Leko. "Having all of this pre-built and ready to roll will save everyone huge amounts in labour. I believe OneSystem Constellation is perfect for those multi-state events with participants in each capital city; we can roll out the same rig in every venue and provide consistency. Lack of consistency in the tech is where those multiple location events usually fall over."

With the OneSystem Constellation having already successfully handled the hybrid Australian and New Zealand College of Anaesthetists Conference at the MCEC with Novatech's partner Wallfly, Leko and Novatech are keen to share their 'gig in a box' with the rest of the industry. Grant Whitehead CTO and director of Wallfly says "Our event required a highly complex hybrid solution across eight days and multiple concurrent sessions. We were thrilled to engage Novatech as our tech partner for the ANZCA ASM. OneSystem Constellation ticked all the boxes and exceeded our expectations."

"We hire out OneSystem Constellation as rack only, and it's a very fair price considering what's in it and how many hours are saved prepping and setting up," offers Leko. "Streaming and hybrid events are not going away, and we created OneSystem Constellation because there just isn't anything else on the market that has these capabilities."




**"It's a beast! Honestly, we didn't really need something that powerful, but now we have it, it has opened up a lot of possibilities."**

# AMBER TECHNOLOGY AT INTEGRATE 2021

**Amber Technology will be at Sydney's ICC July 21 to 23 for the Integrate tradeshow, the only major AV trade event to be held this year. All of these communications products will be on display at Amber's stand E24. Drop in and say hi!**

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### Williams IR+ Control Centre

The IR+ Control Centre provides audio over Wi-Fi and Infrared. The IR+ Control Centre features a distributed infrared emitter array architecture allowing up to four emitters either stacked together for large room arrays or distributed throughout the room to accommodate wings in room design, balconies or other obscured venue locations.

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| | |
|---|---|
| AV | 32% |
| Other* | 26% |
| Sound | 23% |
| Lighting | 18% |

*typically Audio/Lighting/Staging

### WORKPLACE

| | |
|---|---|
| Other* | 27% |
| Production Supply | 19% |
| Corporate | 15% |
| Conventions & Exhibitions | 13% |
| Theatre | 13% |
| Education | 8% |
| Worship | 5% |

*typically Audio/Lighting/Staging

### EMPLOYMENT TYPE

| | |
|---|---|
| Permanent | 67% |
| Freelance | 11% |
| Other* | 9% |
| Perm/Casual | 7% |
| Casual | 7% |

*typically self employed

### ANNUAL SPENDING

| | |
|---|---|
| Up to $10K | 11% |
| $10K - $49K | 14% |
| $50K - $99K | 11% |
| $100K - $499K | 15% |
| Over $500K | 15% |


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# Wireless Communication

## by Mark Barry

Over the years I have seen many technical changes in our industry and the best changes are those that make our work easier. On top of my list is wireless technology becoming more reliable and affordable. My field is live production and most of my shows are set up, operated and pulled down within a day. Anything that speeds up the process is something I will embrace. For every cable I don't have to run, valuable time is saved.

My mantra used to be “KISS: Keep it Simple, Stupid,” now it is “Wireless everything”. This is not just about wireless mics and in-ear monitors, I also use wireless for remote mixing, audio distribution and even DMX lighting. There can be pitfalls; as wireless has become more affordable, it has also become more prevalent. There are multiple bands available, but all these bands are becoming crowded, so it is critical to be aware of good practices and clever strategies to keep your devices communicating and your show seamless.

**Tip number one: understand how to use groups and channels with multiple UHF systems**

Some highly skilled RF engineers at Shure, Sennheiser and other pro audio companies have already gone to the trouble of figuring out how to get the most channels out of a band of frequencies. Best practice (when using multiple wireless mics for example) is to have the same brand with all systems on different channels in the same group. The reason for this is that for every two RF devices, two more RF harmonic or ‘ghost’ frequencies will be generated. Three RF devices might create another six ghost frequencies, and this continues to multiply as more devices are used. Most of these unwanted frequencies will be above or below the band your receivers are in, but there will be some within the band. Here's why the group system works: the frequency of each channel is selected so that the possible harmonics land outside the band or between the other channels in the same group.

**Tip number two: understand how RF behaves**

Most aerials radiate, or receive, in a perpendicular direction, so if one is upright then transmission is horizontal 180° throughout the room. Perfect, right? However, the cordless microphone might be horizontal so its radiation, also 180°, will be sideways. Not so perfect. Without going into all the relevant theory, even though there is plenty of RF power between the two devices, if their aerials are at right angles to each other, then the signal will be greatly reduced. Best practice: have a receiver with its two aerials set at different angles. If the transmitter/microphone moves then at least one aerial will not be at right angles to that transmitter, which is good!

Another fact about aerials: they can radiate and receive at the same time. If you have a number of receivers close together, each of their aerials will be radiating some background RF as well as receiving their desired signal. Consequently, they will also be receiving the background RF from all the other nearby aerials. Worst practice is having all these aerials straight up and parallel to each other. Best practice is to have them angled away from each other, (see image 1), and also further away from each other if practical.

Shure receivers with rabbit ears

Don’t try and modify an aerial system. ‘Rabbit ears’ are half-wave antennae that rely upon the ground plane of the chassis of the device they are attached to. Yes, you can have some cable with BNC connectors and move an aerial to a better position, but the aerial is now less effective as you have removed its ground plane. If relocating an aerial is really necessary then you need paddles instead of rabbit ears.

Another solution is to use an Antenna Splitter, a device that allows two aerials to feed a number of devices.

This reduces the number of aerials required thus reducing the spurious background RF, and can be used with either rabbit ears or paddles. A much neater solution.

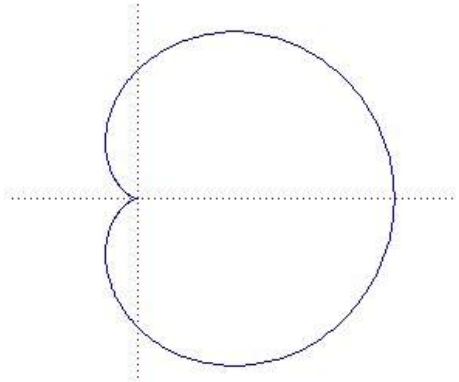
**Tip number three: understand how RF is a shared spectrum**


Sennheiser antenna splitter and receivers

We share the 500 and 600 MHz bands with television. You might have wondered why your wireless mic has “indoor use only” printed in the owner's manual. Television effectively owns this spectrum outdoors, and we are allowed to do what we like with the same spectrum provided we use low powered transmitters indoors. The average brick wall or tiled roof helps as a buffer between our two RF worlds. But some unwanted TV RF can come into your venue. Generally, our equipment can cope with this in a number of ways. One is Squelch where the weaker signal is cut out, similar to a noise gate.

Another way is to have your receiver scan for a clear frequency, then sync its microphone/transmitter. Then leave that microphone on while you scan your next receiver, and so on. As above, stay in the same group and scan for different channels. If you can't get enough channels you might have to choose a different group and start over. Yes, sounds onerous, and this is certainly moving away from my “KISS” mantra, let alone my desire to save time, but television background RF is pretty much stable across a city or region, so once you find a good group it should behave well anywhere in your region. For example, my set of Sennheiser mics in the 626 – 668 band work well in group 18 throughout metro Melbourne.

Paddles are directional aerials with more gain and therefore a longer reach. Having more gain means they can also pick up more unwanted RF. The common conception is that they should point at the source. However, their pick up pattern is about as pointy as a watermelon; it’s a broad cardioid shape.


Cardioid polar pattern

The significant part of their pick-up pattern is the rear, where there is much less gain than the sides and front. Best practice is to point the paddle away from an undesired background RF source (in Melbourne that would be the Mount Dandenong TV transmission towers) rather than point it to the performance area.

**Tip number four: be aware of other wireless equipment in the same building**

The building might be a reception venue with multiple rooms. If time permits, look in the other rooms and ask them what they are using. Without worrying about groups, channels or brand models the best rule is to choose your frequencies as far away as possible from their frequencies. Sometimes this can be coordinated well before the gig. All you have to do is ask.

**Tip number five: download beforehand, don't stream**

Be aware that mobile phones are wireless devices. They are now so common we just take them for granted. But be warned: just because your Spotify music worked fine at soundcheck doesn't mean it will behave well at showtime.

When your audience arrives there will be hundreds of mobile phones in the room and some of these will have background apps communicating on cellular, Bluetooth and Wi-Fi networks. Different networks from your devices, but they will be across the same frequency bands.

So here are two strategies:

- Check if any of the acts are using backing tracks that are being streamed, then tell them that they need to have their music downloaded to a device before showtime
- Have your own iPod or similar device loaded with various different music genres so you have a fall-back when the birthday boy's Spotify connection fails

**Tip(s) number six: managing Wi-Fi with the interference from hundreds of mobile phones**

Once again, be aware of the hundreds of mobile phones that will enter your room with the audience. As mentioned, some will have background apps communicating on Bluetooth and Wi-Fi networks. These apps may not be trying to communicate with your modem, but they will be clogging up the same spectrum

If you are using Wi-Fi for remote mixing there are many things you can do to keep your connection reliable

- Use a high quality dual band Router and position it for line-of-sight
- Have two iPads; one on the 2.4G band, the other on the 5G band. It is much quicker to swap iPads than choose the other Wi-Fi network. I have experienced many gigs where one band (RF band, not rock band!) appears more reliable at soundcheck but then becomes unreliable at showtime
- There are apps such as Wi-fi Analyzer that are very useful in showing what is active in the Wi-Fi bands
- Rename your modem. If it is still called "NetGear00" there will definitely be a few


smart alecs in the audience trying to hook into it for a free internet connection. Or even worse, if it has been aptly named "Mixer32" then be aware that there could be clowns trying to connect in just for the hell of causing mischief! Call it something dull like 'HPPrinter'. Nobody is going to bother trying to hack into a printer

- Consider hiding your modem's identity. This may not be practical if you have multiple devices that need to be easily interchangeable
- Check your Wi-Fi connection after the audience arrives and before the show starts. If the connection between mixer and iPad appears dodgy you have time to turn your modem off and on. Most decent modems will choose the clearest frequency when they restart. I should point out that it is fortunate that Wi-Fi remote mixing is control communication with the mixer and not actual transmission of the audio. Thank goodness that if the modem or iPad fails, the sound through the mixer doesn't stop.
- If the mixer is side of stage, (this is the biggest time saver of wireless technology: no multi-core), have it accessible just in case the remote iPad situation becomes unusable

**More info: available RF bands**

Here in Australia the main legal bands for wireless equipment are between 520 and 694 MHz. TV channels also occupy this area, however coexistence is manageable as I have already explained. 1790 – 1800 MHz is also available as it is the unused "guard" band between the two main groups of cellular phone network bands. Personally, I like this 1.8 GHz band as it is not that popular yet, so it is less likely to have other conflicting equipment. Although this is a narrow band, professional equipment can squeeze in up to 12 channels. And lastly, and I do mean lastly, there is the 2.4 GHz band!

**2.4 Giga Hertz: the lawless Wild West of the radio world**

This spectrum is an absolute free-for-all. Historically, this part of the radio spectrum was deemed to be too hard to regulate or license as almost every house and building in the modern world has a microwave oven! Yep, 2.4 GHz is the same microwave vibration that can boil water and cook food. Ironically, microwave ovens don't broadcast as, by design, they are sealed and shielded so none of the EMF gets out. Regardless, the result was that any device requiring short range wireless communication could broadcast in this band free of any license charges. Consequently you will find doorbells, car keys, remote controls, wireless toys, cordless phones, earbuds, modems and many other devices operating in this band. Furthermore, there are only 14 channels in this band and each channel is about four channels wide, so most are overlapping.

Considering that 2.4 GHz is also the frequency band most readily absorbed by flesh and blood it is an absolute wonder that Wi-Fi works at all in a crowded room. Again, I emphasis that line-of-sight is paramount for clear communication via Wi-Fi.

DMX transmitters and modem raised up for line-of-sight to stage

**Tip number 5: mixing with Wi-Fi and tablet controlled mixers**

In recent years one popular trend is the wireless and tablet-only mixers, like Soundcraft's Ui, Behringer's X-Air and others. Yes I'm a fan of "wireless everything", but the lawless land of microwaves is an unstable and risky environment. Here's my tip: have a laptop with an Ethernet cable directly connected to your mixer as a back-up. It can also be daisy chained through your modem if the mixer has only one port. Also, turn off the Wi-Fi in the laptop so it maintains this Ethernet connection as its only network.

**What about 5 Gigahertz?**

Yes, it works and it appears to be quite reliable, but don't bank on it. 5 GHz is another Wi-Fi band. Its main advantage is that it is less crowded than the 2.4 GHz band so there is less interference. The downside is that its usable distance range is half that of 2.4 GHz. My advice is to have dual band devices if you use Wi-Fi.

Mark Barry

**Mark Barry owns and operates B S Sound PA Hire in Victoria and is happy to go anywhere to work for anyone, he can be contacted at mark@bssound.com.au**

# COMMUNICATING WITH OUR INVERTER

## 232+ reasons to join the 21st century, by John O'Brien

**We live off grid. Most of the time, it's just like being on grid. Switch on, electrons flow, device works. When we hear on the grapevine that the local power network is down yet again, we know that our freezer contents won't spoil. Yeh, yay us for self-sufficient solar. But it's not all feet up and smug schadenfreude. When our system fails, so does our self-satisfaction.**

Last week, we awoke to the incessant beeping of an inverter alarm. Battery low voltage warning. Bugger, hadn't even ground the morning coffee yet! Not good. I used the front panel to give the inverter some cancel culture but it went into shock jock mode and kept shrilly yelling. Cursing back helped none but me. Cancel. Get the kettle on the gas. Cancel again. Enough caffeine left for one brew. OK, there is hope now. Cancel, you *&^$^*.

**Let's have a yack to the inverter and check out its woes**

Next, fire up the laptop, take it out into the cold (did I mention that it was about 2 degrees at this point?) and plug in to the inverter, successful hundreds of times previously. No comms. What? Try another virtual COM port - nadda. Crap. Cancel again, grr.

Just as we were flapping around trying to work out the next step, the sun poked out and spared us a few rays to eke into the system. Within 10 minutes, this was enough to tickle the batteries back up past their low voltage threshold. Alarms silent. Phew. Take that, grumpy electronics.

Now with some system stability, we had time to calmly formulate a plan. As the first morning brews finally took their desired effect, my dearest wisely suggested that the system installer should be up and about by now. Yeh, good call. Dana knows this inside info because she also happens to work there 2 days a week. Handy, huh?

**Talking to humans is mostly easier than talking to machines**

I got on the phone to tech guru Martin to talk over what we were seeing and what could be done. With a sunny day ahead to charge everything full again, the urgency was reduced, so he suggested that the best approach was keep trying to establish connectivity and measure the individual cells first thing next morning (before the sun hits but after the brew is done) to see if we have a dodgy cell. They are sturdy beasts: 12 x 2V SLA @ 1420AH and all checked out healthy.

His Diagnostics 101 approach said: "You had comms recently but not now. What has changed since then?" Me: "Oh nothing, same computer, same drivers, mmmmmm, new Windows install, but nothing otherwise." We laughed as old friends do while I sheepishly added driver updates to the day's list. Over 3 hours, nothing worked and I resigned defeated. Martin came by a few days later and connected immediately. Obviously a problem for me to resolve with my laptop.

**When talking to humans is harder than machines**

The crux of the problem is deeper. Short of the minimal front panel interface, high level communications with our power system have been limited from the start. This design flaw came about through one crucially bad assumption - both system designer Richard and I assumed that the inclusion of a serial port on the inverter model selected would allow appropriate comms to my interface of choice. They had used this port for just that on previous jobs and the inverter exceeded all my briefs on every other spec - robust, reliable, high output and locally made. So, we went with it. Ethernet on inverters was not common then.

When it came time to commission the system, I contacted the manufacturer for a copy of the serial protocols, so that I could start interfacing with an old control processor that I had lying around. "No go, our policies have changed" said the company rep. "We've had too many systems borked with end users fiddling around with stuff they didn't understand."

I could empathise to an extent - I'd just come from 8 years professionally supporting and trouble-shooting much bigger kinds of mess for many other electronics manufacturers, agents, and installers. I'd talked to hundreds of devices via USB, Bluetooth, Ethernet, RS-232, RS-485, RS-422, 0-9V, low voltage relays and IOs. Surely this would qualify me as a power user.

Further, I offered to own any mistakes that I made and repair at my cost - hang the warranty. Happy to go under NDA and I even offered to share any findings with their techs to help them improve their product. But no, the corporate heads had declared "no 3rd party electronic access on domestic installations" across their range. Extended correspondence went nowhere and we were stuck with what we had. Case closed.

The only monitoring option they could offer was running their software on a Windows based computer, over a serial DB9 link. No other OS supported. Reports only available in MS Excel with macros enabled. Remote web access and easy data exports - forget it! In 2012, the rest of the world was already rapidly going Ethernet or Wi-Fi and dedicated serial ports on laptops had all but disappeared. Without the finance for a one-use-only PC in the cabinet, nor time to sniff comms and try to decipher protocols, a USB to serial adaptor was our only choice.

**Getting Serial**

Serial communications are very robust. If you get cable length, pinouts, transmission rate (bits per second, or 'baud'), data and stop start bits, parity and flow control correct, it is stable and reliable. I've used it heaps in all sorts of situations. Getting this to be as reliable when converting over another layer like USB can be problematic.

I'd had no end of fun with USB-serial dongles in my recent employ (some would talk to many devices, some only one, none all) but had a few favourite units to test with. My no-name cheapy won out yet again and I installed the Belkin drivers that it so loved. Plug in, fire up

inverter software and "Hello World", I'm in. Cool.

With the magic dongle permanently attached, hauling the laptop outside to interrogate the inverter had worked stably for over 8 years since. It had done so with 4 different machines and 6 Windows installations. But doing so takes my primary work tool offline and into a dusty, harsh environment and those are both a pain in the bum. Last week's problem was the first major hiccup.

**Communication breakdown nearly drove me insane**

It might have been avoided if I had completed the house-wide comms network. When the inverter company recently released an Ethernet converter for our model, I bought it straight away, sceptical but hopeful. But I've not yet finished all the RJ45 terminations and rack work so, when last week's drama unfolded, it was gathering dust. When the network is done, we should be able to see our battery system status directly from the comfort of our study desks.

Meanwhile, I scoured the internet for wisdom as I faffed with drivers and virtual COM port settings. Today, I finally won. I had an electronic conversation with the inverter. Downloaded all logs, checked statuses and did a little jig. Comms restored. Woohoo.

What was the fix? When I reinstalled Windows recently it did 'the right thing' and updated all my drivers to their latest release. For most software and drivers, this is a surprisingly good feature and generally works well. In this case though, the fresh OS had reassigned my virtual COM ports to be "Standard Serial over Bluetooth link". Not what I needed. It had also hidden the legacy "USB-to-Serial Comm Port" ports that I did need.

I selected 'view hidden devices' to see: "PL2303HXA PHASED OUT SINCE 2012. PLEASE CONTACT YOUR SUPPLIER". Okee dokee...been working for me until 2021, but yeh. More research revealed that some PL2303 chips are wrong'uns and manufacturer drivers have recently been updated to not talk to apparent fakes. Windows compounds this by auto-updating drivers to the latest versions. I found a legacy driver, tried installing it to the hidden COM port, only to have it fail and revert to the 'phased out' warning every time I physically plugged in to the inverter. Before phasing out myself, I then installed the legacy driver whilst plugged in and it stuck. Let's hope it stays that way for a while.

**The good feels...for the good life**

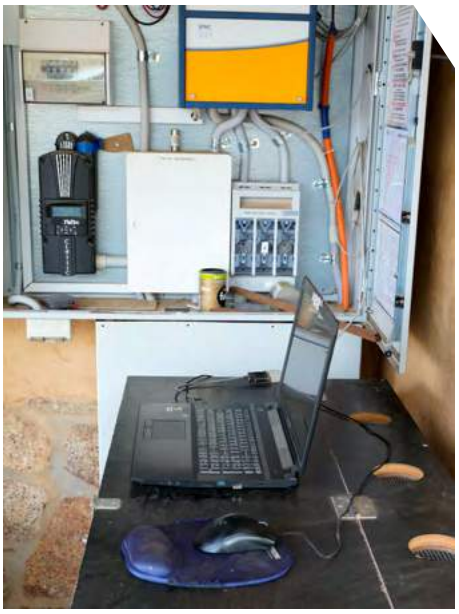
When the sun is out, we care not for the convenience of the grid. If we are careful with consumption, our monthly power bill is less than $10 to fuel the backup generator. Though it did cost a bit to set everything up to be cheap to run, that investment is paying off. It's a nice feeling.

It's not so happy vibes when this illusion of independent nirvana shatters. Tethered by communications to the outside world, we also rely heavily on solid comms with our basic life support infrastructure. My current hack will work for a little while but methinks it's time to move forward with finishing the whole house network. Then we can kick back content, knowing that communicating with our power system is but a click away.

**P.S. (written 2 weeks later)**

It turns out we did have a dodgy cell. Low voltage alarm tripped again a week or so later and one read 32mV. Three-hour round trip to grab a replacement 80kg lump and a two-hour swap in. Charged from gennie, sat down to dinner and sudden darkness! Arrgggh, dug out some candles and had an early night. Checked next morning, the new cell was so bad it had reversed polarity. Arranged another emergency visit to grab two more second-hand cells. Installed and charged the one that read 2.14V but, as the sun dropped, so did the battery and we plunged back to candlelight for another evening. Next morning, we tentatively swapped in the third cell, then charged and set to equalise.

Nature smiled and gave us a long sunny day to fill the bank up and fortune left us enough electrons to rejoin modern life. Good crisis management also kept our perishables from spoiling. That night, and in the nights since, we have thoroughly enjoyed the simple conveniences of lights, telly and phone charging. We also appreciate how very fickle that can sometimes be. We are content but concerned...and have a managed PoE switcher on the way.




# Hytera Helps Staff Talk With the Animals at Samford Pet Resort

**by Jason Allen**

**Set among idyllic rolling hills north-west of Brisbane, Samford Pet Resort spoils pooches and pusses, birds and rodents alike with the ideal pet holiday. A family run business for 25 years, the Resort sits on 40 acres in the Samford Valley, and offers critters five-star accommodation as well as a free daily pick-up and delivery service for their owners, across 30 nominated sites around Brisbane.**

With 40 acres to roam for their staff, and a fleet of vehicles and their drivers on the road at any given time, Samford Pet Resort needs a mobile communication solution that not only lets management and staff talk, but also integrates with their digital communications tools and PABX phone system. After years of making do with hybrid solutions that used multiple devices and never truly integrated all their systems, they've discovered Hytera's PDC760 multi-mode advanced radio, connected to Android devices via the Hytera HyTalk PPT app, all supplied and serviced by D2N - Technology Solutions.

Samford Pet Resort's Director, Blake De Bruin, came across the technology while researching a solution to his multi-device dilemma. "Previously, we were using a combination of mobile phones and two-way radios," explains Blake. "Over the years, our staff have had to carry or wear all sorts of different gadgets. I discovered the Hytera PDC760, which is like a smartphone with a UHF two-way radio built-in, and Hytera recommended I contact D2N - Technology Solutions to have them design a solution for us based around it."

D2N demonstrated to Blake and the staff how the Hytera PDC760s could bring everything together into the one device, including private voice communications, email, and administrative tools, all while minimising the amount of gear everyone needed to hand.

"The Hytera system has enabled us to do what we've never been able to do before, which is reliably reach all our drivers out on the road from here at the resort," reports Blake. "It's also given us additional functionality by connecting everyone via the HyTalk Android app, which allows for closed loop voice communications via our staff's personal devices. We've also hooked in our PABX system via an app so staff can take calls straight to the device. We've never had that capability before."

The whole system is remotely managed by D2N via a web portal. Without interruption to the Resort's operations, D2N can push firmware and software updates to the devices or carry out configuration changes as requested. "It's so easy to do," relates Blake. "We've contacted D2N to lock down or tweak the set-up on our PDC760s, or enable Android compatibility, and it's all done over the internet."

"The service and support from D2N has been fantastic," praises Blake. "They've helped us to learn our way around the devices initially, and then always followed up quickly with any technical support we've needed. The service they offer and their knowledge of the products they support is spot-on."

# Sometimes it all gets too much....


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


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

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# MEGA VISION FIRST TO PURCHASE PLIANT MICROCOM XR IN AUSTRALIA


Mega Vision's Jeff Georgiou and Zak Johnson

**Pliant Technologies, a leader in professional wireless intercom systems, recently released its newest innovation, MicroCom XR.**

MicroCom XR gives production companies, theatres and events businesses a flexible and affordable entry into high quality intercom with minimal configuration and operational headaches.

Steve Parkins, WA Integrated Systems Manager at NAS Solutions, couldn't wait to get his hands on MicroCom XR when the product arrived in Australia.

"Pliant MicroCom was a new solution for production companies, and I put my hand up immediately to get demo units because I could see the potential in it."

Perth-based production and AV hire business Mega Vision Sound & Lighting was on the hunt for a reliable comms system to keep the crew connected during events. Steve wasted no time introducing Mega Vision's Managing Director Jeff Georgiou to Pliant Technologies' MicroCom XR system.

"I had been looking at wireless talkback systems for a long time," says Jeff. "When the Pliant MicroCom XR came along it ticked all the boxes; small, light, effective, and easy to use. It gave us the range and coverage we wanted, and the units are packaged well in a road case."

The system was impressive enough that Jeff purchased it on the spot, turning Mega Vision into Australia's first MicroCom XR user.

"We got probably 250 metres of crystal clear audio," says Steve, describing a MicroCom XR demo he ran with Mega Vision. "There's no base station – it's just beltpack to beltpack. It's really easy to use, and it just works straight away."

Mega Vision has put the MicroCom XR system through its paces at a couple of corporate events and outdoor gigs, with the result being seamless communication between the ops and stage teams.

"There's a big talk button on the face of the unit, so you don't have to look down to make sure you're pressing the right button when you need to talk," explains Jeff. "And the two-channel duplexing allows us to put audio and lighting on separate channels if we need to. All in all, it works really well."

**megavision.com.au**

**plianttechnologies.com**

**nas.solutions**

IS7 and IS118 arrays at Beaconsfield

# Adamson takes it Outside

## by Jason Allen

**Melbourne's St Francis Xavier College is a Catholic secondary college with three campuses across the outer south-east. Two of these, in Beaconsfield and Officer respectively, are now the lucky owners of Adamson PA systems, both manufactured to weatherproof spec by Adamson, covering outdoor areas for assemblies, performances, and sport.**

Looking for a PA solution that gave maximum flexibility with greatest ease of use, and having been let down by AV equipment installed in the past, the College turned to incumbent electrical contractor Pro240 Electrical Services, headed up by Dylan Watkins. "We're an electrical contractor, but I've been in AV since I was 18," says Dylan. "Our audio partner Peter Ellicott at Perfection Audio also came in to consult on this job. In addition to system design, he's also a gun Crestron programmer." Together, Dylan and Peter saw an opportunity to create a high-performance outdoor PA system with a self-explanatory control system for everyday use, plus the ability to handle a full show.

"Despite the 'ease of use' brief, there's actually an awful lot going on in both of these PA systems," elaborates Dylan. "There's video, fibre, DMX, and audio tie lines from front to back, 12 ports of network switching, wireless mic coverage over the whole court, 32a 3-phase 'food truck' and show power thoughout, including custom-made IP rated AV and electrical switchboard enclosures."

Both installs are based in outdoor basketball courts covered with canopies. The Officer campus is two courts end-on-end, giving a long rectangle to cover, while Beaconsfield is three courts side-by-side, creating a wide rectangle. The differing coverage areas and rigging restrictions have created two different system solutions; point source for Officer, and line source for Beaconsfield.

"The Officer and Beaconsfield spaces are two very different shapes," observes Peter Ellicott. "There's also quite a bit of difference in how the canopies are built and supported. There's high dome at Beaconsfield, which creates reflections, and the way the rafters are placed means there's nowhere to rig delays. Officer is long, but the rafters are in a perfect position for delays, so we used that to our advantage."

It wasn't just the shape of the rafters and space that needed to be worked around, but also the weight limitations. "At both venues, there's a 100 kg per hang limit," outlines Peter. "It was going to be really tight to hang anything, as we needed to be able to fly the subs. There was an early suggestion to make the subs an addition that can be rolled in and out, but that was never going to happen without dedicated AV staff on-hand for every event. I was having a discussion with the pro audio team at Adamson distributor CMI Music & Audio about something else, and ended up lamenting about the weight restrictions stopping me from doing the job well. They said 'shoot us some plans and we'll see what we can do'. They came back with an Adamson design that looked great at

a great price."

The design for Officer uses six IS7p dual 7" point source cabinets, hung in three pairs; front of house left and right, delay one left and right, and delay three left and right. Two IS118 subwoofers sit behind the front of house pair. At Beaconsfield, two hangs of four per side IS7 dual 7" line array elements are joined by one IS1118 per side. Both installs are powered by Lab Gruppen amps and their Lake processing.

In addition to needing to be weatherproof, the harsh Australian environment threw them one other curveball. "The installations also needed to be cockatoo proof!" chuckles Dylan. "Cockies can and do come through in a flock and chew everything. All the cabling needed to be cocky proof, so it's all run inside a flexible steel conduit. We learnt this the hard way, standing there while watching them strip things!"

Feeding the PA are four channels of Shure ULX-D wireless mics, with both handheld and bodypack transmitters. There's accommodation for two hardwired mics, as well as two aux inputs. All of this is easily controllable from a wireless tablet that lives in a charging dock in the school's reception area. This ensures that anyone can operate the system for even the simplest use cases, like a PE class, and the tablet is accounted for and charged at all times. For more complicated uses, like a performing arts function, the school's Dante enabled Yamaha mixing consoles can be patched in via the network, and the system switched to full manual control.

"I implemented a Crestron control system, ready to be integrated into Crestron's XiO Cloud solution, bringing the system in line with the rest of the school's control environment," explains Peter. "In addition to the Crestron touch panel, other control includes a Symetrix 8x8 Prism DSP which manages the Dante network. If someone doesn't want to use the Yamaha consoles, they can patch in analog if they want."

Both campuses now have options when hosting any kind of school function. "While it was never part of the intention when the install was put forward, both campuses now have a COVID-safe outdoor area for all their needs," observes Dylan. "We strive to deliver professional high end installations on time and within allocated budgets. For all your electrical and AV solutions please go to pro240.com.au or get in touch via info@pro240.com.au as we would be delighted to work on your next project."

**cmi.com.au**

**adamsonsystems.com**

Front of a Beaconsfield array

FOH LR at Officer

CMI's Lee Stevens at Officer


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# UNIVERSAL SERIAL BUS

by Simon Byrne

**USB, or Universal Serial Bus, is well known to all of us. With the advent of USB Type C, we will be taking advantage of it more and more.**

USB is not just one standard, but a set of specifications for cables, connectors and protocols for connection, communication and power between peripherals and computers.

The USB standards are developed by the USB Promoters Group which is a non-profit corporation founded by the group of companies that developed the Universal Serial Bus specification. Companies like Intel, HP, Apple, and Microsoft lead the USB Promoters Group.

USB has a strict tree network topology. That is, you cannot daisy chain devices. As a matter of fact, it is a master/slave protocol. In most cases, a computer is the master and the peripheral is the slave. Slave devices cannot interact directly with one another except via the master, and two master devices cannot communicate over their USB ports directly.

Another limitation is that a computer cannot broadcast signals to all slaves at once. Each must be addressed individually. In practice, this is not a big problem because modern computers are so fast.

Broadly speaking, we can break the standards into three categories. Connector type, data transfer speed, and power. As an aside the standard also defines the maximum cable length. USB cables are limited in length, as the standard was intended for devices on the same table-top, not between rooms or buildings.

I'll talk about connectors first which are denoted by letters; USB connector Type A, USB Type B and USB Type C.

USB Type A is the classic flat and rectangular connector that you can never figure out how to plug in correctly the first time. Hint, the standard states that the USB logo on a USB A connector (which is only on one side) is facing you when plugged in!

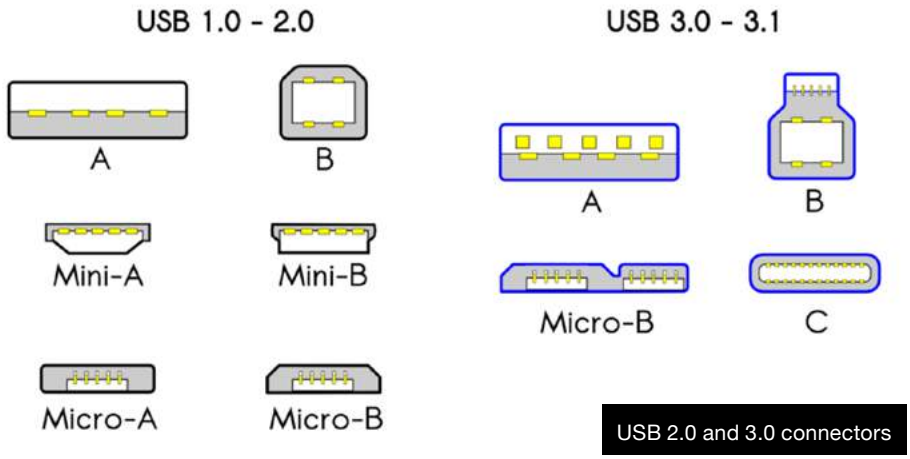
These cables should always have USB Type A on one end with a different plug type on the other, and can be used for device charging and data transfer. You cannot connect two computers using a USB A to USB A cable. It will not work and as a matter of fact, USB A to USB A cables are not permitted under the standards. They should not exist. However, there does exist A-to-A assemblies, referred to as cables (such as the Easy Transfer Cable) but these have a pair of USB devices in the middle, making them more than just cables. The USB A connector is still very widely used.

Next, you see USB Type B on most large devices like printers and in our world, mixing and lighting consoles. Visually, this connector looks almost square. Most cables are USB B to USB A cables, though some newer devices have moved on from USB B to smaller options, like Micro-USB or Mini-USB.

Micro-USB was the standard a while back for certain portable devices, like Android tablets and smartphones because it can transfer data and provide charge. It comes in both Type A Micro and Type B Micro flavours, and is smaller than USB A. Some manufacturers still opt for using Micro-USB parts for their devices, as they're less costly than those for USB Type C.

Mini-USB is a smaller version of USB B. It was the standard for charging or transferring data from devices like tablets before Micro-USB was released. There are also Type A and Type B versions of this connector. It's uncommon to see many products using Mini-USB today, though you can still find them on older electronics.

USB C is the newest standard, and it marries power and data delivery as well as display connectivity. USB C is what you'll see on most new devices like smartphones (except iPhones), audio interfaces, earbud cases, microphones, and laptops. Its form factor is small, oblong, and reversible, so it can be plugged in either way (Finally!)




USB 2.0 and 3.0 connectors

USB Standards

| Standard | Also Known As | Logo | Connector Types | Maximum Data Transfer Speed | Maximum Cable Length |
|---|---|---|---|---|---|
| USB 1.1 | Full Speed USB | | USB A<br>USB B | 12 Mbps | 3 m |
| USB 2.0 | Hi-Speed USB |  | USB A<br>USB B<br>USB Micro A<br>USB Micro B<br>USB Mini A<br>USB Mini B<br>USB Type C | 480 Mbps | 5 m |
| USB 3.2 Gen 1 | USB 3.0<br>USB 3.1 Gen 1<br>SuperSpeed |  | USB A<br>USB B<br>USB Micro B<br>USB Type C | 5 Gbps | 3 m |
| USB 3.2 Gen 2 | USB 3.1<br>USB 3.1 Gen 2<br>SuperSpeed+<br>SuperSpeed 10Gbps |  | USB A<br>USB B<br>USB Micro B<br>USB Type C | 10 Gbps | 3 m |
| USB 3.2 Gen 2x2 | USB 3.2<br>SuperSpeed 20Gbps |  | USB Type C | 20 Gbps | 3 m |
| USB 4 | USB4 Gen 2×2<br>USB4 20Gbps |  | USB Type C | 20 Gbps | 0.8 m |
| USB 4 | USB4 Gen 3×2<br>USB4 40Gbps |  | USB Type C | 40 Gbps | 0.8 m |

USB C cables are smaller and eliminate the need for mini USB ports and the Micro or Mini connectors on devices that have no room for a full USB Type A receptacle. With USB C, there will just be one standard USB Type C port for all devices. Once it's widespread, you won't need different types of USB cables for different devices.

Confusingly, Thunderbolt 3 also uses the USB C connector type, but Thunderbolt is not part of the USB standard (yet…more on this later).

Also, USB C cables are not always compatible with Thunderbolt. A USB C cable that is Thunderbolt compatible will generally be thicker and have the Thunderbolt logo on it.

The USB C connector is capable of delivering 100 watts of power which makes it suited for fast charging as well as high speed data transfers, even with larger devices.

Letters define connector types, the other specs are defined by numbers. The first being USB 1.1 which was introduced in 1998 with a maximum transfer speed of 12 Mbps. Under the standard, a USB 1.1 cable can be up to three metres long.

USB 2 arrived shortly after in 2000 with a massive speed increase of 480 Mbps - 40 times faster! Also known as "Hi-Speed", USB 2 is still very widely used. For example, most audio interfaces, mixers, lighting consoles, DMX interfaces still use USB 2. And why not? 480 Mbps is easily fast enough for those applications. USB 2 cables can be up to five metres long under the standard.

Then there are a few flavours of USB 3. USB 3.0 was introduced in 2008 with a massive speed increase to 5 Gbps. Ten times faster than USB 2. With this increased speed, a reduction in cable length was required, back to three metres.

3.0 was followed by USB 3.1, then 3.2 Gen 2 which increased the speed to 10 Gbps. Gen 3.2 is the fastest you can have on a Type A connector. Next is 3.2 Gen 2x2 that came in 2017 which gave us 20 Gbps. Confusing, isn't it? To make it slightly easier, USB 3.x has been given the moniker of "Superspeed".

To understand the increased data transfer rates, you need to know a little about the design of the USB C connector. A USB Type C connector has four pairs of pins known as "lanes" that transmit (TX) and receive (RX) data. USB 3.0 (5 Gbps, Superspeed) and USB 3.1 (10 Gbps, Superspeed+) use one TX lane and one RX lane, depending on the orientation of the connector. USB 3.2 takes advantage of all four lanes to achieve a 20 Gbps data rate (Superspeed 20 Gbps).

The naming convention recently adopted for USB 3.2 incorporates speed x lanes. For example, USB 3.2 Gen 1x2 means 5 Gbps x 2 lanes, for a connection speed of 10 Gbps (Superspeed+).

Type A connectors that support USB 3.0 speed (5 Gbps), which are the ones that often have blue on the inside, have nine pins versus the four pins found in older USB connectors. However, they are backward compatible and the faster speeds will only work when two USB 3.0 devices are connected to each other. Otherwise, they'll use the slower speeds.

USB4 is on the horizon. USB4 is capable of up to a massive 40 Gps which is comparable to Thunderbolt 3. In theory, you'll be able to transfer a five gigabyte file in one second.

That Thunderbolt comparison isn't a coincidence. Intel, the owners of the Thunderbolt protocol, contributed their specification to the USB Promoter Group for USB4. The best of both worlds on a single port but with one big difference; Thunderbolt can be daisy chained, whereas USB is strictly a host to peripheral protocol.

**Power**

As I mentioned previously, USB is not only a method of transferring data, but power as well. For example, current smartphone models have a USB port for charging (except of course, Apple), data transfer, and even tethering.

There are three main power delivery methods. Standard USB, USB BC, and USB Power Delivery which are extensions of the standard USB specification.

A Standard USB port will deliver 5 volts at up to 1.5 amps (7.5 watts). Before doing so, it does some handshaking with the peripheral device to see how much it wants and will only deliver what is requested. This is a safety measure. If the peripheral device only needs low power (such as a keyboard), it will only deliver 150 milliamps (1/2 watt). An audio interface will be more power hungry, request more and the computer will supply it.

Recognising that USB became the main way that phones are charged, the USB Promoters

Group released the USB BC standard, or USB Battery Charging. The first version USB BC 1.1 delivers 7.5 watts, but version 1.2 delivers 25 watts. A USB BC port will often just deliver power only but not always. You can have a BC port that also delivers data, however because of the extra power carried on the cable, the noise margin is reduced and so is the data rate.

Power on USB Type C is where things really get interesting as that paved the way for yet another USB standard, USB PD, or USB Power Delivery.

No longer limited to 5 volts, USB PD can deliver 20 volts at 5 amps or 100 watts on the really small USB Type C connector. However, last month a major update was announced.

The new version of USB PD will be able to deliver 28V, 36V, and 48V fixed voltages enabled up to 140W, 180W and 240W respectively.

240 watts is a serious amount of power. For example, I looked up how much a DiGiCo SD9 console consumes. It is 208 watts. In theory, you could power the SD9 console from a USB Type C cable and power supply!

Under USB PD, the power direction will no longer be fixed. For example, if you were to have a power hungry hard drive connected to a laptop with a low rated power supply, at the point at which the hard drive spins up and needs more power than the power supply can deliver, the battery in the laptop can supply the surge current.

There is no doubt that as USB Type C becomes more common, we will no longer need adaptor cables. Until then, we will have to put up with a combination of connectors. However, for power alone, it makes sense to choose USB 3.x with Type C connectors where possible.

Cable quality is also very important for high bandwidth applications such as real time video. A lot of cheap cables have the USB symbols on them as if to say they have been tested and are within specification. Often they are not. In cases where it is not clear, cable thickness and build quality are great indicators as to whether they will work properly.

The main problem I come across is poorly powered USB hubs. I run five Stream Decks in my vMix rig and a standard USB hub is not up to powering them all. To solve this, I've started using StarTech industrial USB 3 hubs. Still with the Type A connectors, but with a big, beefy external power supply, it is able to deliver the power I need to all ports of the hub.

With USB 4 speeds on USB C, combined with the new power delivery capabilities announced last month, it will open up lots of opportunities. Until then, we'll still have to pack our adaptors cables!

This USB Type A to Type A cable is hazardous


Startech Industrial USB 3 Hub

# PANDEMIC RECOVERY – IS YOUR INSURANCE FIT FOR PURPOSE?

by Jason Allen

Jason Holmes

**With many companies emerging from COVID hibernation, it's time to check that any insurance policy you paused is re-activated. And while you're at it, it's worth checking if your equipment really is covered for what you do and how and where you do it. We chatted to Jason Holmes and Chris Arif-Ball of production insurance specialists H2 Insurance Solutions and discovered there's a lot of policies out there that don't cover what you think they cover.**

"Insurance is an intangible product," says H2 Insurance Solutions' Director Jason Holmes. "You can't see or touch it. Insurance is a promise to pay, and it's got to be good when you need it. Most people want to do a 'tick and flick' with insurance, and that's sometimes OK for liability insurance, as long as you make sure it covers your occupation. But with equipment insurance, there's a lot of differences between one policy and another, and the cover they provide."

Jason sees that the main risk to production companies is the fine print in policies, sold by generalists, that don't cover equipment in the course of the actual work it does. "We've seen a lot of policies that don't cover gear adequately once it leaves the warehouse," explains Jason. "In the warehouse, the major risk is fire or burglary. Once moving, there's risk in lifting on or off the truck, or in transit. Once its on site, there's more risk. Some policies don't cover gear while being 'assembled or dismantled', which means during set-up or pack down. Sometimes policies don't even provide cover away from the warehouse. Some don't cover absconding by the hirer. One of our options doesn't exclude that, and I believe every other policy in the market does."

"We've found a lot of policies out there where coverage ends as soon as the truck arrives at the venue," adds Chris Arif-Ball, Senior Account Manager at H2 Insurance Solutions. "So, once the bump-in's done and everyone's gone home for the night, if there was fire in the venue, there's no cover."

Something that has become very clear during the pandemic is that government and business largely have no idea how the live production ecosystem operates, or are even aware of its existence. "I grew up playing as a drummer, then doing PA, lighting, and event management," relates Jason. "I see the whole industry. The problem is most insurance people have no idea what any of us actually do or how we do it, and so can't advise correctly. Most insurance brokers just want to be everything to everyone. I feel I need to take some insurers out onto sites so they can see what happens when a truck gets unloaded, or when the chain motors go in. This is how

brokers end up selling policies that only cover gear in warehouses, or transit policies that don't cover gear at bump in or out, or left on-site for more than a day. They don't get it, so they don't even know what questions to ask."

**Opening Back Up**

"A lot of people suspended or cancelled their insurance during the pandemic, thinking it was a cost that they would just have to risk," outlines Jason. "Now they're moving gear out of the warehouse again, and they need to make sure the cover is re-activated, and right."

"When COVID hit, we restricted client's insurance to 'warehouse only' in some cases," expands Chris. "If you're getting back out and doing gigs, check your territorial limits to make sure you're covered. For example, we did a lot of 'laid up cover' for customer's vehicles, which meant they were only covered at the base of operations. That saved client's money, but if they're back in use, you do need full cover."

"A lot of people moved to 'laid up' cover, and then forgot they did it," agrees Jason. "Some clients chose to keep all of the fleet insured so if they took one around the block, had a delivery, or an unexpected bit of work, they didn't have to worry. Hopefully everyone's remembered if they reduced their cover. Please though, if you're moving again, make sure you are re-insured."

**Establishing a New Company**

If anyone's game enough to start out in production in the current environment (and some have; disruption makes for innovation) what are Jason and Chris's tips on where to start with insurance? "First, contact an insurer who specialises and is established," recommends Jason. "Find out who insures someone you respect. You will know if they're any good when they ask a lot of questions about your business activities and your experience."

"I would ask a prospective customer exactly what services they are providing," offers Chris. "Is it just hire, or do you do sales? Are those sales installations? For example, pure sales are lower risk than installations. We present to our liability insurer on that basis, and that's how we get a competitively priced premium. You'll need to put together a full equipment schedule, a summary of the gear, its total replacement value, and I cannot stress enough the importance of insuring for full value. In some policies, there's an underinsured clause, where if you haven't insured the gear for the right value, you don't get paid. I'll also want to know where the equipment will be used; does it go overseas or Australia-wide? And where do you store it? I'd also have a conversation about any other insurance products you might need – vehicles, management liability, and public liability, for example."

**Insurance Check-Up**

If you're already up and running and want your insurance checked for price and suitability, it's worth getting a second opinion. "When a new client approaches us, we ask for copies of their current policies," says Chris. "They can cover up the prices if they so wish, because we don't need that to assess the policy. It's not until you look at the fine details and T&Cs that we begin to see exclusions like absconding, set-up, installation and so on. That's usually where we see improvement is required."

**Exclusions, Documentation, Details**

It's exclusions that are the real devil in the detail, and they're much more common than you'd think. "We look after a lot of promoters," says Jason. "We had a case recently where one was contracting security. We told the promoter we needed to see the security company's certificate of currency. We looked at it, and the exclusions said they weren't covered for event services or security at open air events. The promoter's event was an outdoor music festival."

"I've got another one," continues Jason. "There was a scaffolding company coming in to do staging and scaffolding. When we got their certificate of currency, it excluded works on stages, lighting towers and so on. The organiser complained that the other company who quoted was covered properly but cost more. That's the difference between someone that's doing it properly and someone that's not."

The exclusions were most likely not entirely the fault of the insured, and are just as likely to have arisen out of a misunderstanding by the broker. "You have to make sure the business description of what you do is clear and correct in your insurance," emphasises Jason. "If you do staging and it's not clearly stated, where does that leave you?"

"I've seen someone described as audio engineer, when they're actually a hire company," Chris adds. "Some insurers have online quoting platforms with a set list of occupations. If they don't get it, and you select 'audio engineer', you'll get a competitive quote, but it will be completely wrong. Some sole traders that work for production companies don't hold public liability insurance. A common misconception is that they're automatically covered by a production company's public liability. As standard, it's only PAYG employees that are covered by the employing company's public liability, unless there's a specific extension applied. That comes up a lot."

As we all come back onto stages and into the lights, blinking at the brightness after our COVID hibernation, Jason, Chris and H2 Insurance just want to make sure that anything avoidable can be avoided. "Our industry's already been through enough," intones Jason. "A lot of companies are close to the edge, and if anything happens and they're under insured or not covered prope. that'd be the worst. We need people to be informed."

Chris Arif-Ball

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