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Editor's Letter



It's common to find systems integrators around the world that have gained years of experience and expertise in installations for one particular denomination, for example you could find one integrator in Malaysia that specialises in mosque installations or another company in the US may focus mostly on Roman Catholic churches. And while the Sharjah Worship Centre in the UAE (p.14) is home to a collection of different Christian churches, they all differ in their style of worship, from speech to a full band and high SPLs. The team at Alpha Acoustics has cleverly designed a speaker setup that caters to everyone – from lively, high-energy services to contemporary music and a full choir.

I'd also like to welcome audio engineer Erwin Balangue who has extensive experience in church installations and training. In his first of a two-part series (p.32), he looks at what gain staging is, why it matters, what mistakes to avoid and how to do it right.

And as holiday season beckons, I'm interested to hear whether like me you can't completely step away from the day job. On a break in Switzerland recently, I came across a beautiful small church in Lauterbrunnen and immediately looked around to see what the AV setup was ... Active Audio speakers in case you're wondering. Happy holidays!

I hope you enjoy the issue.

Karen

Email: kwallace@worshipavl.com

Follow us on social media @WorshipAVLMagazine



Contact us

Richard Lawn
General manager

rlawn@worshipavl.com

Sue Gould
Advertising director

sgould@worshipavl.com

Carolyn Valliere
Sales associate

cvalliere@worshipavl.com

Simon Luckhurst
Senior reporter

sluckhurst@worshipavl.com

Caroline Moss
Contributing editor

cmoss@worshipavl.com

Bea Meikle
News editor

bmeikle@worshipavl.com

Nick Smith
Digital media manager

nsmith@worshipavl.com

Chris Yardley
Video editor

cyardley@worshipavl.com

Jack Stennulat
Digital content creator

jstennulat@worshipavl.com

Adrian Baker
Production editor

abaker@worshipavl.com

Jo Pugh-Jones
Production manager

jpj@worshipavl.com

Marne Mittelmann
Circulation manager

circulation@worshipavl.com

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The TV master control before the HD upgrade



The TV master control no longer uses automation

A look at the past

Casey Hawkins reminisces about upgrading his church's cable TV channel to HD and the future benefits that decision would bring

SIX YEARS AGO TODAY, AS I write this, we signed on the HD version of our church's cable TV channel. It was something I had been working on for years and it had finally come to the day when I coordinated with the cable TV headend engineer to swap us over to the new fibre receiver that I had delivered to him that week. In this issue, I'll tell you what I did to upgrade it to HD and what value it became to our church and the community.

What it was

When I moved back to Tyler, Texas and returned to Green Acres Baptist Church in November 2016, I knew that having a cable TV channel within our control was a very rare thing and, because of my history in broadcast television, I quickly made that channel my little project. Along with creating our church's own Roku channel, I wanted to make something worthwhile out of our easy-to-pass-by cable TV channel.

Airing FamilyNet at the time, the local cable TV headend downlinked FamilyNet for us, then sent us that signal over fibre, where we inserted that into our daily programme schedule, then fibred that back to the cable TV headend for them to distribute on channel 17 on their lineup. It was a service that we had

been paying for for a number of years, but no one had placed much attention to it and certainly not the attention I was going to give it.

There was an automation system powered by NVersion, which controlled a playback server made by 360 Systems, which was Linux-based. The automation system had full remote control of the master control router and would switch between the satellite source from the cable headend and the server playback, as those were the only two sources then. There was an old tube TV for monitoring the programme feed, but no off-air monitoring. That was pretty much it.

What it became

I started out changing the network partner. FamilyNet dissolved just as I was taking this project on. That was when we discovered The Walk. It was only on C-Band satellite at the time, so we bought a 3m satellite dish and a C-Band receiver and tuned them in and started airing them. I had so many issues with them technically that managing that cable channel back then really became a test of my endurance. Since The Walk was not very well technically set up and we had just started with our own satellite downlink, it was always a struggle to

MEET THE AUTHOR

Casey Hawkins is the director of video engineering and live production for Green Acres Baptist Church in Tyler, Texas, a Southern Baptist megachurch with over 17,000 members. Having begun his career in 1990 volunteering at his childhood church in Fullerton, CA and later at Green Acres in Tyler, he spent many years in broadcast television working for multiple television stations in both Texas and Oklahoma. He has worked as a broadcast technician for a major telecoms company, managing national and international television broadcast signals over a switched fibre-optic network. He also owned and operated an independent video production firm in Tulsa, OK for 10 years before returning to Tyler and the Green Acres Baptist Church broadcast ministry in 2016.



Casey Hawkins

determine what might be my problem and what was theirs.

These problems happened so often I needed something else to air. We found Family Friendly Entertainment, a full-time streaming programme that aired old Gospel music programmes. But they had their own issues as well. Their playlist would end or their encoder would lock up ... typical livestreaming issues. I thought about airing our own programming off of a server 24x7 just to avoid all this trouble, but we wanted to offer

our viewers a variety of family-safe programming, especially for our congregation whose tithes were paying for this channel.

All the while those issues were going on, I was building our Roku channel and one of my goals was to livestream our cable channel air signal to our Roku channel so that those who did not have cable TV could still tune in. But there was nobody to call or text or email ... technical support for those programming sources was non-existent.

But, as time went on, ownership of The Walk changed and the new owners invested time, effort and money in making it reliable. They were responsive and, finally, I had someone to work with and isolate the cause of problems I had been having for a while. I was able to get the programme feed livestreamed to the Roku channel successfully. Finally, I had tamed this beast and so I was able to upgrade it to HD. Since our Worship Center cameras had been upgraded to HD over a year prior, we had a good collection of TV programmes that were HD. The Walk was SD and so was Family Friendly Entertainment. As I began the upgrade, I also sought out new, more modern and, of course, HD content providers and I found Spirit TV. I partnered with them and immediately replaced Family Friendly and, over time, we dropped The Walk. Soon we just aired Spirit TV and our programmes.

I upgraded the NVersion automation and the playback server. I went with an NVersion Windows-based server because we had a relationship with NVersion and we linked them so it seemed like a no-brainer. The Walk started streaming, so we started receiving their HD livestream and, of



GABC's TV master control as it looks today

course, Spirit TV in HD. Now that all my sources were HD, I was ready to upgrade the transmission gear to HD so I bought a new fibre transmitter and receiver for the trip to the cable

headend as well as an ASI encoder since the cable company wanted that instead of HD-SDI. Part of the automation and transmission was a new master control switcher and the

new one had more inputs and outputs, so I managed to tie that into our main production router. That gave me the ability to go live to our cable channel – something not possible before.

Nine months later came Covid and the church shut down in one week. We immediately started livestreaming and, of course, we were able to go live on our cable channel, which also meant we were live on our Roku channel. All of that work that I really thought was just for my own fun, quickly turned into a real pain, then back to a very enjoyable upgrade that resulted in one of the most widely used ways our congregation watched our live and pre-produced content when the church was shut down. If I had not upgraded it, we could not have done that. So as I look back today and reminisce about those days of our cable channel, I smile because I can see so clearly a way for our church to stay connected. Sadly, we signed the channel off three years ago. All of the equipment still exists. I still do a 24x7 livestream to the Roku channel for those who like to watch us live on Sundays. A church with their own cable TV channel – that will probably never happen again so I am so very blessed and thankful to have been a part of it.

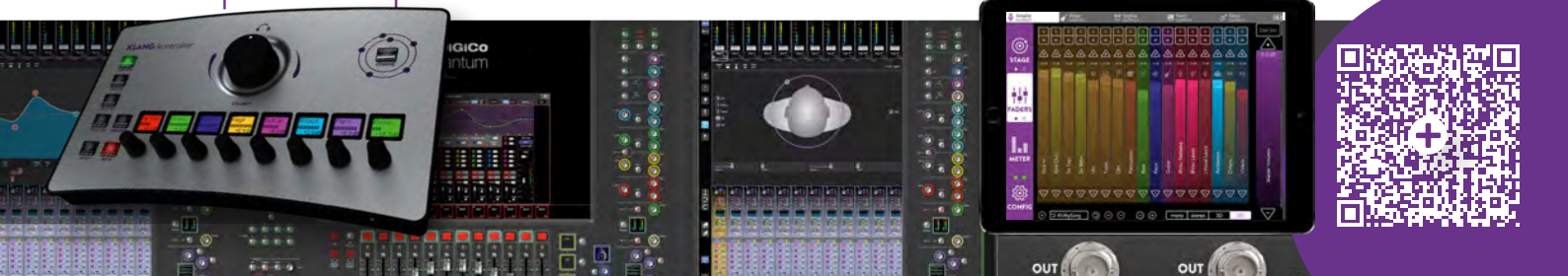


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Raising the faders – and the people behind them

Audio engineer **Kevin Yague** looks at the importance of building people rather than just filling roles on the audio team

ONE SUNDAY, A NEW VOLUNTEER

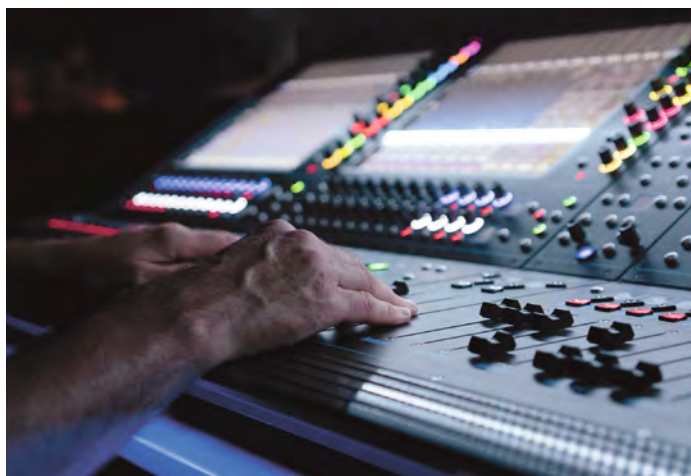
stood behind the audio console for the first time. He wasn't alone – I was right there beside him – but when it came time to unmute the pastor's mic, he froze. I leaned in and said gently, "You're doing fine. Just breathe. You've got this." He looked at me, nodded and pressed the button.

That moment stuck with me. Not because anything went wrong, but because it reminded me: what seems simple to us as tech leaders can feel overwhelming to someone just starting out. Every confident operator you know had a first day. And often, someone else made that day a little less scary.

Over the years, I've realised that developing a great audio team in the church isn't just about mixing skills – it's about building people. Not just filling roles, but helping volunteers grow in confidence, clarity and purpose. That means we need to be intentional about how we bring them in, how we train them and how we support them.

Look beyond skills – start with potential

If I've learned anything, it's that some of the best volunteers aren't the ones with the strongest résumés – they're the ones who are curious, steady and willing to learn. Recruiting starts with



It's not just about raising the faders, it's about raising the people

keeping your eyes open. I've invited teens who loved video games and music. I've tapped quiet observers who noticed when a mic stand was in the wrong place. I look for people with teachable hearts and an interest in helping behind the scenes. When I approach someone, I try to paint a clear picture: "You won't just be pressing buttons. You'll be helping the entire church experience worship with clarity and focus."

Don't rush the process

One mistake I made early on was trying to "train and deploy" too fast. It's tempting to get someone

up and running in one or two Sundays, especially when you're short on hands – but it doesn't stick. Now, I take things slower. I invite new volunteers to hang out at rehearsals first. They'll watch what we do, help with simple things like wrapping cables or swapping batteries, and gradually absorb the environment without pressure. From there, I let them assist a seasoned team member for several Sundays before giving them the board. This slow introduction gives them room to grow naturally – and it helps them feel like they belong before they're even officially "serving".

Keep training focused and repeatable

Training doesn't need to be complex, but it does need to be clear. I break things down into short, hands-on lessons over time. One week we focus on gain structure. Another week might be about EQing vocals. Another on transitions during worship sets. I also keep basic resources in the booth – a checklist for service prep, a simple guide for common troubleshooting and a signal flow diagram. These tools don't just help new volunteers – they help make expectations consistent across the team.

Most importantly, I encourage them to listen – really listen. I'll play back a rehearsal mix and ask: "What stands out to you? Can you hear every vocal?" This kind of engagement builds confidence in their ears, not just their hands.

Build a team, not just a schedule

No one wants to feel like a spare part. I try to build real community on our team by starting services with a quick prayer and check-in, celebrating when someone nails a tough mix or just grabbing a meal together once in a while. Even small habits – like asking for feedback after a service or encouraging volunteers to suggest mix improvements – go a long way in building ownership. When someone feels their opinion matters, they're much more likely to stay, grow and eventually lead.

Don't be afraid to start small

I aim to add a few new people every season – not dozens. Sometimes just one or two consistent, committed volunteers can make a massive difference over time. The key is not to rush it. Focus on helping each person succeed. If they're seen, supported and given the space to grow, they'll stick around. And when they do? They'll become the kind of volunteers who make your ministry better – technically and relationally.

Final thought

I love great audio. I love the satisfaction of a clean mix and the beauty of a full, clear worship sound. But I love it even more when I see someone who once doubted themselves now running the board like a pro – calm, focused and even mentoring someone else. Raising the faders is important. But raising the people behind them? That's where the real impact is.



Image courtesy of KLANG:technologies and Seven Rivers Church

Committed volunteers can make a massive difference over time

Introducing the world's most portable all-in-one television studio!

ATEM Television Studio 4K8 is a professional live production switcher built into a broadcast control panel so it can be used for high end work while being extremely portable. You get a powerful switcher with 8 x 12G-SDI standards converted inputs, 10 x 12G-SDI aux outputs, 4 chroma keys, 2 downstream keys, SuperSource, 2 media players and lots of transitions!

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The ATEM Television Studio 4K8 combines a switcher and control panel into the same unit, so it's extremely portable. The front panel includes buttons for selecting sources, triggering transitions and setting up video effects. You also get a built in t-bar for manual transition control! The front panel even has an innovative audio mixer control area with live metering on a dedicated LCD.

Powerful SuperSource Processing!

In addition to the DVE in the ATEM Television Studio 4K8, there is also a powerful SuperSource multi layer processor! Any video input can be used as sources for each DVE, then it's all layered together over a media pool custom background or live video. SuperSource is perfect for interviews because you can set up the effect so the viewer can see each person being interviewed all within a stylish graphic.

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Balance is where true mixing lies

Fundamentals of mixing

In this second part, Allen & Heath's commercial audio manager, **Samantha Potter**, makes some further adjustments to get the balance just right

IN THE FIRST PART OF THIS

short series, we discussed two of the most important and fundamental tenants of mixing: gain and high-pass filters (HPF). We continue our journey here to cover the other must-not-forgets.

All your inputs are appropriately gained, and you've eliminated the rumble and unnecessary low end out of our channels – hooray! In the most perfect world with amazing instruments, fantastic musicians and a well-reinforced space, we're basically done. Throw the faders up to Unity (0dB) and let them have a go. Unfortunately, this isn't often the case (read: never) so we'll make some slight further adjustments.

Balance

If you've never had the pleasure of hearing a jazz band play live, it's quite an experience. Jazz musicians are exceptional at balancing themselves between one another without any use of sound reinforcement. Everyone knows their place and performs their job to the best of their ability in an effort to

stay true to the music. A lesson we could all take a page from. And, in fact, we will.

Balance is key. While gain settings and HPFs help our audio remain "clean" and "healthy", balance is where I consider the true mixing to lie. A little more of this, a little less of that. Our personal and musical tastes also have great influence over how we balance the mix.

There are two forms of balance we should be aware of when mixing many instruments together. First, we have intra-instrumental: the balance of like-instruments between each other. Second, we have inter-instrumental: the balance of different instruments altogether.

Intra-instrumental

Consider a drum kit, or a choir, or any instrument or group that is made up of a sum of parts. Each piece, if not each done by a different human, is hit or played or belted by another hand at another angle or for different purposes. Let's stick with the drum kit for a moment. All four limbs (though,



Inter-instrumental balance brings everything together

not exclusively) are often used to interact with three, upwards of 10 drums, cymbals or other accoutrement. There are arguments to be made about how hard they should hit each one of those, when or with a certain amount of flair, but the major point remains true: they're all different.

In the first part of this series, we made sure that each part individually was in a good spot. But now we're adding parts together. We want to balance all these parts together to make sure that the

drum kit sounds like one cohesive instrument, instead of 10 separate pieces that are being played at the same time.

Start with the kick drum and snare. Their relationship is fundamental to the entire musical arrangement. Once you feel they are in balance (again, personal taste will change this so talk with your musical director or worship leader to find inspiration from recordings or live performances of music you'd all like to aim for), add another piece in – perhaps the highest-pitched

tom. Then the next tom down, then cymbals and so on.

Don't get caught up trying to be perfect. Remember, these are humans. They may play differently on the next song, or during the next phrase. Ask yourselves these questions: can I hear (if even faintly) each part of the drum kit? Is any drum far too "out front" or loud? Does it sound cohesive or more like a snare track featuring a hi-hat?

Same for vocal groups. If you're individually miking your vocal groups or choirs, it's extremely important that you retain balance between them all. If you're utilising choir mics or a stereo pairing of mics on the group, then your job is fairly easy. It's almost entirely up to the group to balance themselves and for you to capture it. But, if they are individually miked, your job should be balancing those voices together.

Even if it's a duet or a leader with two background singers, that balance is so vital and will take your mix from a simple reinforcement to a true piece of art. I'm not even exaggerating here; it is that important. Who is leading? Who has what part? Is someone ever so slightly off tune and might be better off gently tucked beneath their vocal partner? Nailing a vocal balance



We want to balance the drum kit so it sounds like one cohesive instrument

gives me chills. It's the epitome of group performance, in my eyes.

When it comes to the intra-instrumental balance and mixing, I often keep my hands near their respective faders so I can make slight adjustments (a few decibels here and there) throughout a song and throughout the entire performance. The console becomes my instrument, at this point.

Inter-instrumental

Once we have spent a few moments on each group of like-instruments, we can then mentally zoom back out and take in the picture as a whole. This is where inter-instrumental balance enters focus. With inter-instrumental balancing, we seek to find balance between the sections: drums

alongside the vocals alongside the guitars and bass, and so on.

Are the vocals sitting cleanly on top, without sounding like a karaoke bar? Do the keys have an appropriate spot without overwhelming the bass guitar? This is a time to reference those inspirational tracks you picked out with your music leadership. Some genres are more drum-heavy, others are more guitar-forward. There's no right or wrong answer. My only rule of thumb here would be to make sure the vocals can be heard and understood without the use of visual aids. That can be done pretty easily with levels, though EQ and dynamics processing can take us a long way, too – but that's outside the scope of our conversation today. Don't

worry, I've written it down as a possible future topic.

Always check in with yourself while you're getting all this balance right. Go easy on yourself and prepare to change on a whim. Keep those faders nearby or utilise tools such as DCAs to give yourself easier control with fewer fingers necessary. This is art – enjoy the process!

My checklist

Here is my checklist that I use whenever I walk up to a console. This is not an exhaustive list, of course, but somewhere to begin. Perhaps it's helpful for you, as well.

1. Check gain on each channel (while they are playing authentically, not a shy strum because everyone is watching them soundcheck).
2. Activate your HPF and confirm the corner frequency.
3. Know why each EQ looks the way it does. If not, reset it and start over.
4. Bring faders down to infinity, unmute, then fade the channels back in to ~0dB.
5. Balance intra-instrumentally.
6. Balance inter-instrumentally.
7. Salt and pepper to taste.






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Churches want to build studios – should they?

CTS AVL vice president of integration, **Neal Watson**, considers whether building a studio is the right move for your church



Do you have a real plan, or does it just sound fun?

Building a studio is a significant investment of time, money and resources. Without a clear vision, it can quickly become a burden. Churches need to ask critical questions: do you have a concrete plan for the type of content you'll create? Do you have a content schedule that you can realistically maintain? What happens during busy seasons when creating content is challenging? These are vital considerations to avoid the potential conflicts and frustrations that arise from an underutilised studio. Creating a studio "just because it sounds fun" can lead

- **Scheduling:** who will have access to the studio, and how will you manage that access? What tools or software will you use to track and manage time slots?
- **Staffing:** does your current technical team have the capacity to manage a studio? Will you need to hire additional staff? Who will oversee content review and management to ensure time is used efficiently?
- **Budget:** do you have the necessary budget to build, equip and maintain a studio? This includes facility construction, equipment purchases, asset management and annual software or service fees.

IN TODAY'S DIGITAL AGE, MANY

churches are feeling the pressure to create and distribute more content across social media platforms. The temptation to build a dedicated studio can be strong, especially when the latest tech trends promise new ways to engage congregations and attract new members.

Why are churches being tempted to build a studio?

With the growing demand for digital content, churches are looking for ways to reach a wider audience. Whether it's creating engaging video blogs, podcasts or Bible studies, a studio offers the potential to expand a church's message beyond Sunday services. It's also about staying connected with the congregation and appealing to new members.

For many, the idea of building a studio is as much about "keeping up with the Joneses" as it is about ministry. The allure of cutting-edge technology only adds to the appeal. Advanced tools like augmented reality (AR), extended reality (XR), virtual reality (VR) and camera tracking offer exciting new ways to enhance services and content. But the real question is: do you need it?

What content are churches looking to create?

Churches are eager to produce a wide range of content to supplement and enrich their services. This can include:

- Video content for services or livestreaming.
- Video blogs from pastors and leaders.
- Engaging podcasts on relevant topics.
- Bible study series that can be shared online.
- Creative, mission-driven content to reach the broader community.

With the endless possibilities that a studio can provide, it's easy to understand the excitement. But while the potential is vast, it's essential to evaluate whether the investment will truly serve your church's goals.

Is it wise for churches to build a studio?

The answer? Possibly. But it's not the right move for every church. While some churches might benefit greatly from a dedicated production space, others may find it a costly and an underutilised resource.



Churches are increasingly looking to create video content, blogs and podcasts

to staff burnout and wasted resources.

Key considerations before building a studio

If your church is seriously considering building a studio, there are several factors to evaluate:

- **Vision:** do you have a well-defined vision for the type of content you'll produce? Is this aligned with your church's mission?
- **Goals:** how much content will you create and how frequently? Will you be able to sustain that output long term?

Conclusion

While building a studio can be an exciting new venture for some churches, it's not a one-size-fits-all solution. The key to success lies in careful planning and a clear understanding of how a studio will serve your church's mission and long-term goals. If your church has the vision, staff and resources to support this investment, a studio could open new doors for connection and outreach. If not, it may be best to focus on more sustainable ways to achieve your ministry goals.

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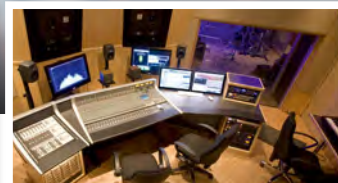
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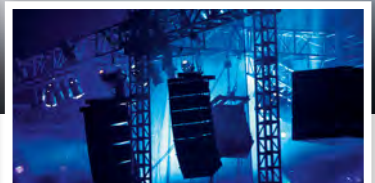
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Intricately detailed sculptures depict Biblical scenes

The exhibition centre is situated in the grounds of Mount Mary's Basilica

Immersed in faith

Bea Meikle visits Pranam Maria, the audiovisual experience at Mount Mary's Basilica in Mumbai, bringing worshippers closer to their faith

MOUNT MARY'S BASILICA

stands proud in Bandra as a symbol of the Christian faith. The church, dedicated to Mary, mother of Jesus, provides a place of worship, peace, reassurance and hope for its devoted congregants. Beyond the 16th-century architectural marvel of the Gothic Revival sanctuary is a contrastingly modern experience centre featuring Pranam Maria, a 45-minute audiovisual storytelling of the Mysteries of the Rosary, illustrating the events of the lives of Jesus and Mary, and offering a new way for worshippers to reconnect with their faith, while providing an immersive source of education for the younger generation.

Often referred to as the "Queen of Suburbs", the Bandra coastal neighbourhood of Mumbai is known for its strong ties to the region's film industry, attracting a crowd of Bollywood stars and Indian celebrities. Aptly suited to the entertainment hub, Pranam Maria, which translates to Holy Mary, provides a theatrically themed style of worship experience, featuring intricately detailed sculptures depicting scenes from the Biblical

story. The figures are brought to life by narration and music playing from Tannoy speakers and illuminated by lighting from Cona. The audio and lighting are synchronised together and controlled through QSC's Q-SYS platform in a timed sequence.

Bengaluru-based AV equipment supplier AudViC was tasked with the design and installation of the technical setup. Although the AV integration is integral to the experience, AudViC technical director Deepak Gracias insists that "the real innovation here is the concept. The idea of bringing the story of the Mysteries of the Rosary to life through life-size statues and technology to deliver a more realistic picture form is highly original."

The innovative idea was initiated by the late Monsignor Nereus Rodrigues, the longest-serving rector of the basilica for 20 years, who had a vision that the exhibition centre would provide devotees with the peace and happiness they are seeking. "People of all different faiths from across the world travel to Mount Mary; it is regarded as a sanctuary for peace and hope,"



Pranam Maria is a 45-minute audiovisual storytelling of Mary's life

remarks the basilica's current rector, Fr Vernon Aguiar. "Monsignor Rodrigues's idea was to create something here to inspire people. It has been beautifully executed, standing as a form of education for younger generations, while providing an outlet for people to feel closer to the holy figure."

The project began in 2016 when a local team came together to design the creative concept for the centre, before AudViC was engaged to provide the technology to bring it to life. However, Monsignor Rodrigues's vision was no easy feat to realise and required careful planning. A key consideration was to ensure that the lighting and audio would run in perfect harmony for the story to flow as visitors walk through the vast centre encompassing three floors and measuring 930m².

With supply chain issues impacting the project, the team faced issues with accessing equipment, spurring AudViC to approach local Indian manufacturer Cona Lighting to provide the complete lighting system. The setup comprises 181 RGB LED light spots, 366 colour PARs and 850 batons from Cona, alongside 40 LED PAR cans from SP RO.

The audio installation was conducted by Shawn Miranda from Sound Busters who installed Tannoy AMS 6ICT surface-mount loudspeakers throughout the centre. Miranda's audio design was aimed at delivering a full-bodied sound to complement the combination of music and narration being played. He opted for 20 units to fulfil the coverage and SPL requirements in the seven specific zones. The cabinets are powered

Stella Art-Net to DMX lighting controllers using one DMX universe in each zone. Three TP Link network switches forward data between devices.

To satisfy the requirements of each zone, all hardware and controls in each space need to function independently, requiring multiple audio players within the Q-SYS platform. "The timeline player in Q-SYS provides the functionality to create triggers with varied fade-in and fade-out timings, and activate system controls at specific points on the timeline of the audio track in the timeline player. That is where we activate the lighting presets, trigger snapshots and call control functions to trigger scripts in the background."

As well as controlling the lighting and managing the overall system, the Q-SYS Core also stores all

operable UCIs for each guide with complete visibility of the active zones throughout the facility. The additional requirement to implement automated panic buttons can be triggered by any guide with evacuation mode protocols and there is an Admin UCI which offers control and fault monitoring with system status reports.

With a project of this scale, it was imperative to keep things simple as different guides or staff would be operating the system. In addition, as the experience is run daily, each guided tour had to be consistent with no changes, which is where Q-SYS has been beneficial by enabling all cues to be preprogrammed.

Panam Maria offers room to expand, with the technical team looking at potential ideas to cater to larger groups who may not have time to complete the full experience. One idea is to implement QR codes at each scene which can be scanned to reveal the story around that event, while hymns and music play throughout the show instead of the narration. Furthermore, the audio is available in multiple languages. Each day, the basilica welcomes 1,500–2,000 people, with up to 3,000–5,000 visitors at the weekend.

Various groups were able to enjoy Panam Maria prior to its opening, also serving as a valuable opportunity for the technical team to gain feedback. Rector Fr Aguiar adds that "people from all age groups across the city of Mumbai were fascinated by the immersive experience and found the story of Jesus and Mary from the Bible to be highly impactful, providing valuable feedback for the public launch".

Rector Fr Aguiar and everyone at Panam Maria have been incredibly grateful to everyone who has been involved in bringing the experience to life. It is hoped that when visitors walk through the experience and have the story told right in front of their eyes, with the music, narration and lighting, it will connect them to the events in the lives of Mary and Jesus at a deeper level.

Going beyond the traditional methods of engaging the community, Panam Maria shows how the smart integration of AV systems can help to make stories more realistic, enhance the worship experience and engage younger generations.

www.audvic.com

www.panammaria.org



Tour guides operate the AV system in each zone

Additionally, the entire venue is divided into seven zones with each one addressing three or more scenes of the story, with tour guides needed to operate the system in each zone.

Gracias explains that the main objective was to create an immersive experience that would leave a lasting impression on visitors. "This was never about making money; it's about reviving your faith. The solution had to be effective – both in appeal and in terms of cost. Therefore, we chose a limited network system that merges both the audio and lighting, providing a more cost-effective option that still delivers an impact."

by two Lab Gruppen E 20:4 amplifiers.

A highlight of the AV design is the use of Q-SYS to sync between the Art-Net signal for the lighting and audio, which is unusual on such an extensive project featuring 1,500 lighting fixtures. The venue needed to operate lighting and then sync with audio, without the use of a conventional lighting console. A single Q-SYS Core 110f v2 processor provides a fully integrated control solution, combined with seven Madrix Stella Art-Net nodes installed in each of the seven zones to control and manage the AV setup. Twenty-two DMX splitters have been implemented to manage signal distribution, with the Madrix

audio onto a media drive. "With this setup, you can play the track and add snapshots or triggers through it, enabling different fade times and presets. Essentially, this setup relies completely on scripting which makes it easier to manage the system efficiently and without manual errors," explains Gracias.

An exhibition setup such as this also required simple but effective fault monitoring and system check tools to ensure smooth operation. The scripting feature works effectively by creating user control interfaces (UCIs) that are simple to operate yet provide and run complex functions in the background.

The scripting feature in Q-SYS helped create multiple independent

Five for the price of one

Alpha Acoustics has designed a speaker setup that caters to the needs of all the denominations that meet at the Sharjah Worship Centre

FAITH CAN BE EXPERIENCED IN

different ways – from high-energy services to more sedate worship focusing on the spoken word. So, what happens when a church building is shared by various denominations who are all looking for something different from the venue's sound system?

Alpha Acoustics has designed a multipurpose speaker setup for the Sharjah Worship Centre that covers the entire spectrum, from speech to a full band and high SPLs.

"The UAE government has benevolently provided an area in each emirate to the Christian community so they can have their own places of worship," explains Joe Mathew, MEAL product specialist for Czech Republic speaker and amplifier manufacturer Alpha Acoustics. Sharjah has a vast collection of churches, ranging from Russian Orthodox to Anglican. The Sharjah Worship Centre is shared between five churches that use the venue on a weekly basis, with an additional four churches that use the space for special events. The Church of South India (CSI), the Indian Pentecostal Church (IPC), the Assemblies of God, Church United and a new-generation church called the Apostolic Church hold regular weekly services. Mathew describes the



L-R: Alpha Acoustics' Stephen Mathew, Thulasi Das and Joe Mathew

Pentecostal Church as high SPL, with lively, high-energy services, while the CSI has an 80-member choir and the Apostolic Church has contemporary music and a full band.

The centre was built collectively so that each entity could use the space at different times and share the venue at the weekend with services running from early in the morning until late at night. "I got talking with Bishop Shan [Mathew, senior pastor at Church United] and he was telling me about the speaker system in the building that was over 20 years old with huge wooden boxes that were hung horizontally, so we started a conversation with the Sharjah Worship Centre Council as they were looking for someone to design a new system that would suit the needs of everyone who worships in the centre. They were concerned that if they installed a sound system designed specifically for the high-energy Pentecostal services, then the CSI wouldn't be able to use it, for example. We needed to design a PA system that was multipurpose. We initially considered either a powered or passive system, but we knew that

the system was likely to get pushed to its limits."

The main FOH line array consists of three Alpha Acoustics 13-inch KROSS 7 3-way speakers each side, coupled with a matching 21-inch KROSS SUB 21 in a 1:1 cardioid configuration. The speaker positioning is around 5m from the stage. "When we considered that the first row of seating for all services is around 4–5m away from the stage, we realised that it would be pointless to fill the front area with high SPLs, so we moved the line array further back and positioned two KITE 10 speakers for front fill on top of the stage." The front-fill speakers cover the first two rows with the main line array covering the rest of the space, with an additional delay stack positioned around 25m back from the edge of the stage.

And it's not just the energy levels of each service that vary – the CSI church choir sits on the right side of the sanctuary among the congregation rather than on the stage. "The choir mics and condensers were all in the line of fire, but with the new right-side front fills, the CSI choir can listen to themselves without any feedback."



Meanwhile, the Pentecostal Church band uses the coaxial monitors on the stage as well as in-ear monitors. "We've provided the main pastors and the singers that don't use in-ears with two KOMPACT 12A coaxial speakers. The delay is so perfect that the sound is now uniform around the entire room. The whole space was acoustically challenging but we've also managed to reduce the slapback that was coming back onto the stage."

The venue is not only used for weekly services but also for conferences and special events. For tuning, the team selected an Alpha Acoustics KONTROL FIR48 4-in/8-out matrix along with five DAMP 4.1500HD and two DAMP 2.2800HD amplifiers with built-in DSP, with each of the tops receiving their own signal. "On the FIR48, there is a facility where the engineer can mute anything that they don't want to use, so if a choir has more condenser mics, they want to hear themselves a little louder or use floor monitors, then the main sound engineer, Mr Kumar, mutes the front field right, for example. The venue also has a curtain that can be pulled across the room just in front of the delay fills, so he can mute delay 1 and delay 2 left and right and just run with the front fills and the line arrays. Or for other services he can just leave everything on – we've given him DSP access via his laptop so everything is connected and networked."

After several site visits, structural tests and various planning meetings, the installation went ahead without a glitch. "Our friends at ESJAY, which is



The main line array consists of three Alpha Acoustics KROSS 7 speakers each side



KROSS SUB 21 subwoofers have been installed in a 1:1 cardioid configuration

a technical services company, helped us get the line arrays up and in place in 12 hours and that was a first for us at Alpha Acoustics," smiles Mathew. "We'd sat and choreographed the whole installation in terms of timing, with everything installed and commissioned in less than a week. We also want to thank our Middle East distributor Signaux Technologies who made sure everything was in stock and arrived on time. It was a great team effort – we're a newer brand in the market and to have the Sharjah Worship Centre Council place their trust in us was something very special."

With the Alpha Acoustics team staying onsite during the first full weekend of services using the new setup, testimonials from all the churches and pastors are nothing but exemplary. "We were looking for the best option after many years of using the old system and I'm glad Alpha Acoustics was able to deliver what they had promised – a system that

can handle anything we needed," says IPC pastor Rev Dr Wilson Joseph. "It was our biggest desire to hear our choir and the spoken word, loud and clear. Our services sound full with this new system," adds CSI vicar Rev Sunil Raj.

But the last word must go to Bishop Shan. "When we invited Alpha Acoustics to design our upgrade, something told me we had the right guys on the job. They not only designed a great system but installed it in record time and supported our various congregations with their personal requirements. The KITE 10 and KROSS 7 speaker boxes deliver far more than what their data sheets proclaimed. I personally love the tonal quality of the system, its ability to deliver high SPL output and uniform audio around the hall."

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Bedok Methodist Church will celebrate its 80th anniversary in 2026



L-R: Bedok Methodist Church's AV leader Aiden Lee with Concept Systems Technologies' sales director Gerald Fong

Quality over quantity

Concept Systems Technologies has upgraded the ageing and failing speaker system at Bedok Methodist Church

ASSUMING THE ROLE OF

audiovisual lead at Bedok Methodist Church in late 2023, Aiden Lee understood that the sands of time were quickly filtering through the hourglass. Having already committed to a traditional final phase AV design before he joined, the church leaders were nevertheless open minded to any enhancements Lee may suggest. With a budget demanding value engineering where possible, both Lee and the church maintained a course of quality over quantity, with maximum flexibility built in.

Like most Singapore churches, Bedok Methodist started with humble beginnings. Consecrated in 1946 with just 15 members gathering in a traditional attap house with palm frond roofing, today's vibrant, modern house of worship is a pivotal part of the community, serving hundreds of members. The elders concluded that the cornerstone of this east coast Singaporean community required a complete renovation in 2021, including a significant investment in AV and lighting technology.

Noting the haphazard routing of cables, Lee deduced that the prior works carried out over two decades

ago by the church engineers had been patchwork. "The previously existing AV system design centred on a traditional hard-wired matrix," notes Lee. "The church was still uncertain at that point about how they would like to proceed in future, so I proposed an AV-over-IP design to provide more flexibility." The open-minded church committee agreed to change the entire schematics to accommodate AV-over-IP.

Following loudspeaker demonstrations in the main sanctuary from several leading international brands, the movement to commence a renovation for the entire church began. The extensive refurbishment to the 400-seat sanctuary would mark the third and final phase of the church's renovations. "Most of the AV and lighting design discussions happened before I arrived in September 2023, with the tender going out in November," continues Lee. "With a commitment required to add value engineering on budget in addition to strongly promoted design suggestions, ensured that multiple iterations followed."

Prior to Lee's appointment, the pre-existing audio mixing console



Each L-R array comprises two A10i Focus and a single A10i Wide cabinet



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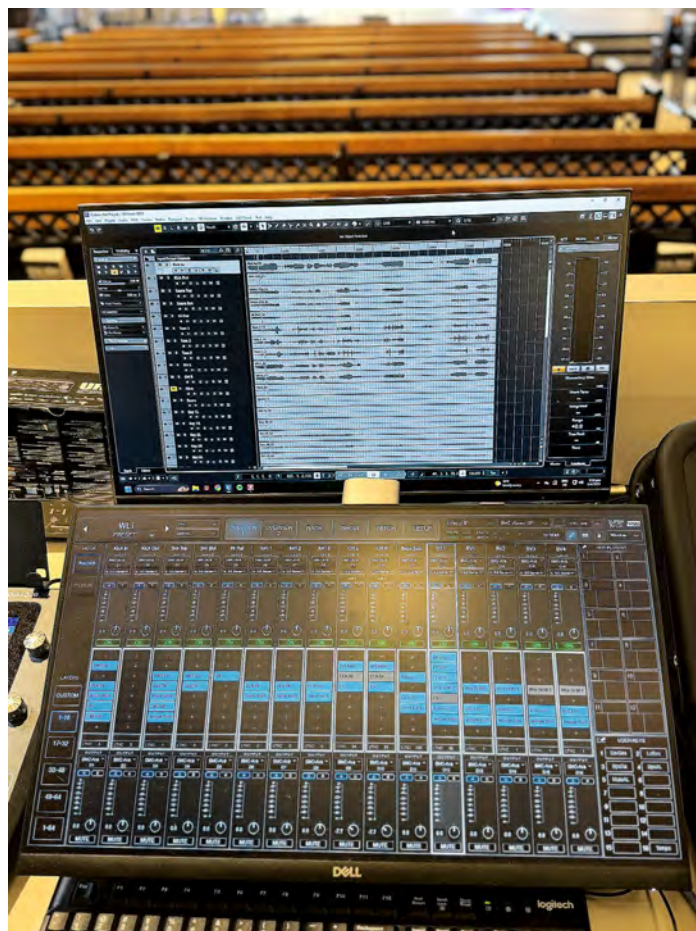
and projectors had started to fail. In addition to purchasing new L-R Epson EB2220B 20,000 ANSI lumens projectors, the FOH setup that had remained unchanged and in situ for 20 years was also relocated. With the church's initial choice of digital audio mixing console being out of stock, Lee specified an Allen & Heath Avantis control surface with two touchscreens. Receiving its inputs from two DT168 16-in/8 XLR out expanders, the 64-channel input control surface with its 96kHz XCVI FPGA engine proved to be a better purchase, according to Lee.

"There are so many great features built into the design, including virtual soundcheck that can be operated at the click of a button. By playing back previously recorded material, the band members don't need to perform a soundcheck. It's a useful feature for the 9.00am Sunday morning service, because I can just recall the musicians who are going to be playing and change the gain structure for the bass and lead guitarists."

Developed specifically for the Avantis console, the UK brand's purpose-developed dPack software includes advanced processing, tools and effects, including DEEP Processing plugins, together with access to the Dyn8 dynamic EQ and multi-band



The Allen & Heath Avantis control surface at FOH



Waves SoundGrid connectivity adds Waves V3 software for the Avantis system

compressor. Having analysed alternatives, Lee decided not to subscribe to the dPack software. "Despite having very little built-in latency, I opted to focus on quality rather than excessive features that may never be used."

The adoption of software control is now a key component of the church's AV operations. These include Sennheiser Cockpit PC audio control for monitoring the wireless microphone system, Dante networking and Waves V3 for Avantis software. The latter adds 128 channels of Waves SoundGrid connectivity to the Avantis system, with the Waves plugins running both on the computer and dedicated Waves server. Additionally, up to 128 tracks of 96kHz audio can be recorded into the computer.

"For the processing of our main individual channels, such as the drums, a Dante signal is routed to the console, which is returned to the Waves Server via the card. On the touchscreen, I can monitor the kick-in, kick-out, snare top and other channels on the drums. All these processing signals run on different types of compressors that are not normally available with the Avantis and, by running Waves Tune Real-Time, we can select different types and models of

reverb within the whole suite of Waves plugins."

The insertion of a 64x64 Dante audio interface module into the Avantis console allows the audio operator to ingest all the audio inputs available on the AV-over-IP network. "Dante control allows us to do all our routing, and we can also monitor for faults. Because the operator can visualise the entire network from one screen, this is a useful alternative snapshot compared to the different layers that can sometimes be buried within a mixing console."

In addition, the Dante Virtual Sound Card also allows the church operators to record every single track available. "My expertise comes from the postproduction side, so I



The musicians are equipped with Allen &

work backwards to get what I want from the live tools. Should someone wish to listen to the pastors without any background music playing for a social media upload, this flexible postproduction tool allows us to break down the mix as desired."

Another six months had followed the conclusion of the loudspeaker demonstrations when the renovation plan was finally approved. Rather than simply replace the speakers, this period was required to decide how the hall would be renovated. With Ian Tan appointed as the acoustic consultant, the church bypassed the value engineering concept by signing the purchase order for an L-Acoustics A Series sound system that would deliver tour-grade sound quality.

Modelled in L-Acoustics Soundvision 3D software and verified by the company's Singapore-based application engineers, the design features a combination of A10i and X Series components. Supplied by Concept Systems Technologies Pte Ltd, the

main L-R configuration consists of two A10i Focus and one A10i Wide passive constant curvature enclosures per side, complemented by three centrally flown SB18i 18-inch subwoofers in cardioid mode, for controlled low-end reinforcement. This configuration was specifically chosen after initial demonstrations revealed that the SB18i provided the tight bass response best suited to the sanctuary's high-ceiling, A-frame architecture.

Uniform coverage has been achieved through strategic placement of fill speakers. Single L-Acoustics X8i coaxial cabinets are mounted on each side of the hall for under-balcony coverage, with four additional X8i units serving the rear seating area's lower ceiling section. A further two 5XT



Heath ME-1 personal mixers

coaxial 5-inch models handle a small adjacent section, and a further four X8 cabinets provide stage monitoring for the performers. A combination of LA4X and LA2Xi amplified controllers provide sufficient headroom power together with DSP, and the inclusion of an LS10 10-port AVB network switch provides Milan-AVB ready networking for the future.

"Bringing pristine clarity and uniform coverage to the venue, this technical upgrade marks a dramatic shift from the church's previous mono array configuration to a stereo setup with subwoofers. "Consistently delivering clarity for the choir and the worship band, the A10 system gives me complete confidence in managing our diverse range of services and musical productions."

In addition to the X8 floor wedges, the musicians and singers can monitor their performances by adopting Allen & Heath ME-1 personal mixers. Networked to the ME-U 10-port PoE hub, the six ME-1s showcase

the expansion possibilities within the Allen & Heath ecosystem. Five wireless Sennheiser IEMs receive their UHF signal from dual AC41 active antenna combiners.

Breaking free from video projection, an LED confidence screen is fixed to the wall overhead FOH operations. Also supplied by Concept Systems Technologies and processed by a Novastar VX600 controller, 12 AOTO U2.5 2.5mm pixel pitch LED displays combine to create a 2,560mm x 1,440mm (WxH) screen.

"Despite being a value engineering project, I refused to compromise on the number of cameras or inputs or the quality of microphones onstage," attests Lee. Boosted by two wall-mounted UHF passive directional remote antennas, the Sennheiser ew-DX wireless system currently comprises six SKM handhelds and two SK bodypacks transmitting to two EM4 Dante 4-channel receivers. Musicians also connect to the mix by adopting the wired Sennheiser MMD 935 dynamic cardioids.

The worship leaders also misplaced the value engineering memo by insisting on DPA 4266 ear-worn mics, while the pianist is suitably amplified by the DPA 4099 CORE placed on the grand. The DPA inventory has extended to the string section and the choir with dual 4099 CORE clip-ons and stand-mounted DPA 4097 pencil diaphragms respectively.

Owing to budget constraints and because the project was delayed, acoustic treatment will be applied as a retro fit. However, the church



The grand piano is amplified by the DPA 4099 CORE microphone

has invested in a state-of-the-art drum enclosure to mitigate the reverberations from the percussionist. An extensive Shure portfolio of mics adorns the kit, including a Beta52A for kick drum and Beta91 for the kick out. With a Beta56 and two SM57s applied to the top and bottom of the snare respectively, the hi-hat mics rely on a pair of SM81 diaphragms. Three Sennheiser MD421 condensers were preferred for the toms and a matched pair of sE Electronics SE4400 condensers have been placed as overheads.

Although the amount of lighting fixtures has been reduced in the sanctuary, the church opted to invest in quality over quantity once again. Controlled by a simplified ChamSys Quick Q20 20-fader DMX, 12 Martin LED moving heads are assembled onto the two overhead bars. In

addition to the ERA 400 Profiles and ERA 150 Washes, a further six static ELP LED PARs, four ELP PAR LED ellipsoids and four ELP Lens tubes highlight the services and performances onstage.

Impressed by the high quality of the Canon N700 PTZ cameras at another Singapore church, Lee specified three of the same model for the sanctuary, managed from an RC-IP100 PTZ camera controller. A pre-existing fourth camera fixed above the central aisle continues to be used for overall pan shots. Together with Pro Presenter lyrics and a PC hosting video files, the resultant inputs are connected to a NewTek Tricaster Mini X surface desktop and an 8-in/8-out Ross Carbonite Ultra Solo UHD production switcher. Specified for its rock-solid reliability, the resultant HDMI outputs from the switcher are transmitted directly to the main visual outputs.

For streaming to YouTube, a dedicated computer loaded with Ross's Dashboard interface software receives its signal from a Blackmagic Design ATEM Mini Pro ISO live switcher. The SDI signals from up to four ISO cameras are routed to the HyperDeck and Teradek recorders. With the addition of two Visionary E5200 encoders serving as YouTube streamers, the AV-over-IP infrastructure can accept video formats up to 4K60 4:4:4.

"My basic design philosophy focuses on the operator," asserts Lee. "Education is key. Because my clients often don't know what they want, it becomes paramount that the volunteers have an appreciation of what they require, so that they don't blow up the system." Once again, valued knowledge trumps value engineering.



Martin LED moving heads assembled on two overhead bars

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Manna processes the changes

Soundus has returned to Manna Methodist Church to extend the venue's commitment to DiGiCo consoles



The main Zion Hall draws 10,000 worshippers for five services each week

WHEN SOUNDUS CORPORATION

was commissioned to supply and install a digital console mixing system into the 3,000-seat Manna Methodist Church in Bundang New City in 2012, its ability to deliver quality and reliability has continued to earn the company repeat business.

Attracting some 10,000 worshippers each week for five services, the main Zion Hall features a live worship band with a choir, organist and orchestra. As such, a high-input channel count was required, together with the ability to mix live audio for broadcast streaming services over the internet. Connected to four SD-Racks, a DiGiCo SD7 console operated at FOH for 12 years with an SD8-24 handling the live broadcast mix. As Manna expanded, the DiGiCo ecosystem was extended to include an SD9 as a portable system, together with an SD11 for the video editing suite.

"The initial decision to use DiGiCo consoles was based on the SD7's ability to handle more than 200 input channels, the dual engine offering stability, reliable redundancy and excellent sound



L-R: Soundus's Jae Seung Park, Sean Kim and Aileen with DiGiCo's Ian Staddon, Manna Church's Young Jin Won and d&b audiotechnik Korea's Daniel Kim and Jason Che

quality," explains Soundus's sales engineer, Sean Kim. "As the church also needed additional mixing consoles, the DiGiCo solution maintains user familiarity and a consistency in audio quality." Providing both versatility and future expansion requirements, an

Optocore fibre-optic network was added as part of the upgrade.

Working closely with two other full time sound engineers Choi Houn Seok and Park Ju Sung, Young Jin Won's arrival at Manna Church coincided with the arrival of the SD7 consoles in 2012. "High-end audio quality

is paramount, but the dual engine redundancy of the SD7 made it a solid investment," comments Won. "With the SD8 installed in the broadcast suite, we were properly equipped to transmit services during the pandemic. This significantly increased the church's televised audience on national TV in addition to YouTube."

A glance at the expansive stage and it's easy to see where all those microphone inputs, and outputs, originate. The microphone inputs are routed into three SD-Racks located behind the stage in a room adjacent to the broadcast suite. An additional SD-MiNi Rack also connects all the loudspeaker outputs. Six musicians – a percussionist, two guitarists, two keyboard players and a bass player – receive their monitor mix over Aviom A640 personal mixers. With a choir of up to 50 vocalists taking their position to the rear of the stage, a 50-piece orchestra performs to the left.

On the stage itself, up to eight background vocalists accompany the

pastor and worship leader through each of the five Sunday services. The choir is amplified by suspended stereo pairs of Neumann KM184 compact diaphragm condensers, in addition to some classic long-serving AKG miniature mics. Preferring a hands-free microphone solution, the



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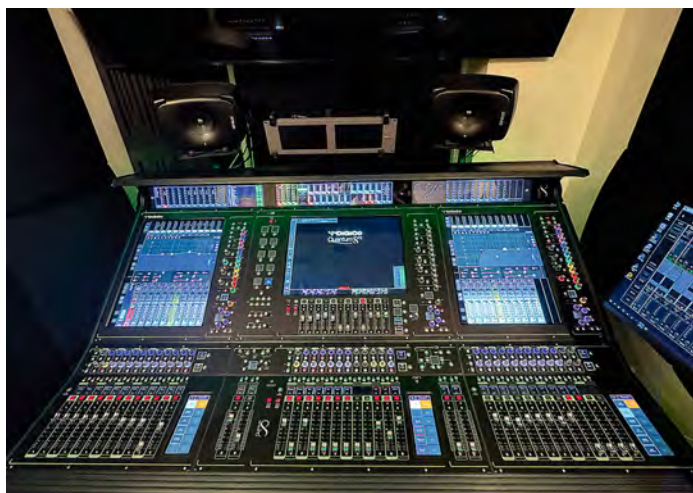
worship leader is fitted with a DPA d:line wireless head-worn model. The background singers are addressed by a Shure Axient wireless solution using KSM11 and Beta 87 handheld transmitters.

Having bypassed the era of the Quantum 7, Won was increasingly drawn to the flagship Quantum 852 control surface. With its dual engine, the work surface is characterised by 52 physical faders and three 21.3-inch 1,000-nit LCD high-resolution touchscreens. Combining five large-scale FPGAs, up to 384 input channels can be ingested, with 192 aux/sub-group busses, plus LR/LCR/5.1 master busses. It comes with a 64x64 processing matrix, 36 control groups, two solo busses, 64 effects rack slots and 48 graphic EQs. Inherent

version 20 software includes the latest dynamics processing, including my own personal favourite, the Mustard Source Expander."

The timing of the upgrade coincided with the availability of the Fourier Audio transform.engine, allowing the Manna engineers to flexibly use plugins within a more controlled environment. "Going forwards, this is an asset and we have the capacity to expand. It's future-proofed as the built-in control within the console's open platform allow us to choose VST3-based plugins. This does not limit us to specific suites of plugins, so we can experiment from time to time."

Up to 504 channels of audio are split by the standard Optocore fibre loop to the two DiGiCo Quantum 852 consoles located in the broadcast suite and



The Quantum 852 installed into the compact broadcasting suite behind the stage

processing includes Mustard channel strips, Spice Rack plugin-style native FPGA options, Nodal and True Solo.

"Critically, it's the built-in dual engine redundancy backup that is paramount. Like the SD7, I wanted our next audio console investment to endure for the next 10–15 years. Therefore, future-proofing dictated the need for more channel inputs should they be required. Prior to the upgrade, we were considering the 338, and this would have been a perfect match for our current setup. With its 156 channel inputs, the 338 was ample for now, but the 852 can receive up to 384 inputs, and this provides us with system expansion."

Won notes that although the layouts of the 852 and the SD7 are similar, the workflow is completely new. "We are now maximising the inherent processing built into the 852," he continues. "There is no need to worry about connectivity and processing anymore, and we are really enjoying experimenting with the Spice Rack and Mustard processing. The new

at front of house operations. Looped together in the redundant ring, all the inputs and outputs can be shared. Despite the limited space of the broadcast suite, the Quantum 852 is at home to receive its independent mix.

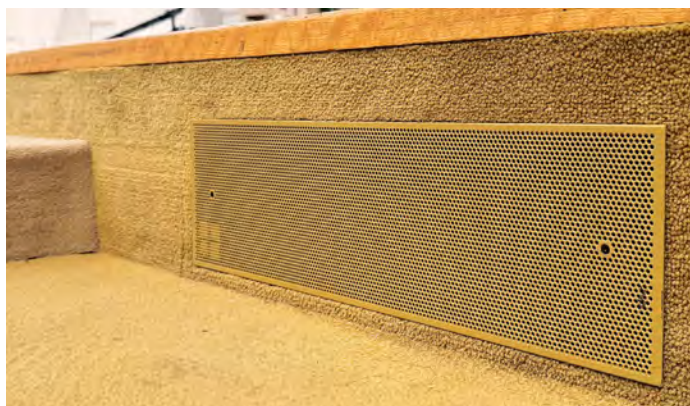
"Serving as a dedicated Quantum 852 console for this position ensures that the levels can be correctly output to the viewers and listeners. Maintaining a consistent quality is important. The pandemic may be over, but many worshippers prefer to watch and listen to their services from home."

Given the consistent reliability the SD7 provided over its 12-year residency, piece of mind has been extended with the latest 852 investments. "The support we receive from the DiGiCo distributor, Soundus, is second to none," adds Won. "The reliability of the console is matched by the fast response of their engineers. Should we experience a problem, they always provide a solution in time for our next service."

Installed prior to the SD7 consoles, the church's line array speakers and



Suspended L-R pairs of KSLi and KSLi-Subs provide consistent coverage



Custom-painted d&b 44S cabinets provide front-fill reinforcement

subwoofers were showing signs of fatigue. "Replacing the SD7 for a Q852 was a 'no-brainer', but the loudspeaker system required deeper analysis," explains Won. "Having previously owned a self-powered system, we agreed that a passive system would provide us with better management control."

Around 100 worshippers were invited to analyse three different loudspeaker demonstrations over a three-week period during which music playback, speech and a live band were output. Ultimately, a KSLi system by d&b audiotechnik scored the highest points. "What we really wanted to focus on was making sure the true fundamentals of the system coverage were absolutely exemplary," explains

d&b audiotechnik Korea director and systems engineer, Daniel Kim. "In a room such as this, it's easier said than done to ensure we have speakers in all the positions they need to be."

The design is based around flown L-R arrays of d&b audiotechnik KSLi modules and SL-Subs. The 12-per-side system provides excellent coverage throughout the entire sanctuary, with less than a ± 3 dB drop. Rear wall reflections are a thing of the past. Before the speakers could be flown, an architect was appointed to authorise a safety certificate for the upgraded works. "KSLi was specifically chosen for its exceptional pattern control," comments Won. "And then having the distributed side fills from the Yi7p has made a significant

improvement to the consistency of coverage across the auditorium.”

Minimising low frequencies emitting from the stage, the flown subwoofers are arranged in cardioid mode, while ArrayProcessing within the d&b ArrayCalc simulation software ensures excellent consistency throughout the venue. The optional software function determines tailored filters to control the behaviour of a line array system. When switched on, an analysis process is triggered that examines the performance of an array at numerous receiver points along all listening planes within its coverage.

For every receiver point, the sound of every loudspeaker is calculated across 249 individual frequency bands. The optimisation process evaluates a predefined target frequency response, user-definable settings for level over distance and processing emphasis.

The result is a combination of FIR and IIR filters for each individual cabinet in the array to achieve the targeted performance, with an additional latency of only 5.9ms. “Before ArrayProcessing, there was no consistency in the audio,” discloses Won. “Additionally, we could not spill the audio signals between the FOH and monitor audio signals.”

For the side fills covering the downstairs and balcony seats, a



Wall-mounted Y17P enclosures serve as powerful side fills

3-way solution was initially sought. However, a powerful 2-way setup has been adopted with the same voicing characteristics, and four wall-mounted Y17P enclosures provide the same voicing characteristics as the KSL modules. A discreet finish has been applied with a customised RAL paint to match the colour of the walls to the cabinets and grilles. Similarly, the eight 44S dual 4-inch speakers neatly installed into the stairs of the stage for front-fill reinforcement have also been customised. A further two wall-mounted Y17P cabinets serve as stage side fills.



The pastor and worship leader monitor themselves on compact M6 speakers

“After monitoring themselves for the first time with the compact d&b M6

speakers, the pastor and worship leader agreed that they were receiving more information and audio characteristics,” adds Won. “The backing vocalists are also monitored with M4 monitors. The choir monitor their performances courtesy of two mounted E8 cabinets.”

An AES/EBU input signal from the DiGiCo Quantum 852 is received by the 16 d&b audiotechnik 40D amplifiers that are racked in a newly converted AV room. “To minimise cable runs and audio signal loss, the amplifiers needed to be positioned near the loudspeakers. A vacant upstairs room backstage was converted to host the three amplifier racks hosting 23 2U amplifiers, including seven 10D models, an audio power distributor and an SD-MiNi Rack.

Like DiGiCo, the quality of the d&b audiotechnik speaker system is matched by excellent local service support. “Kim and his team are located in the same district and are regulars here Manna Church,” adds Won. “We are now blessed with best-in-class audio quality.”

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Taking Aim



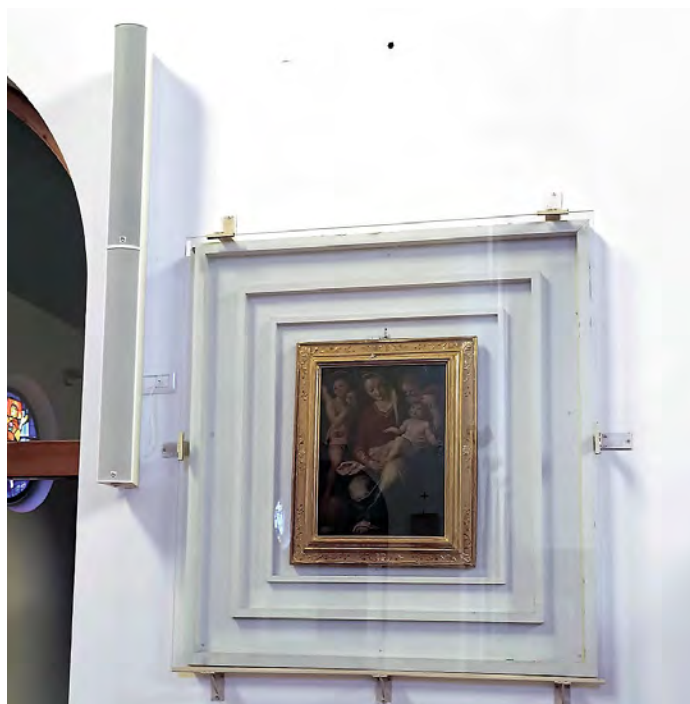
The Immacolata e San Martino a Montughi Catholic church has implemented AtlasIED beam-steering loudspeakers to enhance speech clarity

DUE TO ITS VAULTED CEILINGS,

stone construction, solid wood pews and a long nave, parishioners at the Immacolata e San Martino a Montughi were struggling to hear and understand the liturgy in this Catholic church in the beautiful city of Florence in Italy. One of nearly 100 churches in the Tuscan city, the church is located along via Paoletti and was constructed in 1936.

Immacolata e San Martino a Montughi was closed for an extensive restoration of the nave, reopening in October 2023. However, the restoration didn't include an upgrade to the audio system, resulting in the problems with speech intelligibility continuing to hamper audibility during services. Church staff made the decision to engage local AV consultant Guido Guidi to recommend a solution that would enable better intelligibility and an enhanced worship experience along the 30m-long nave. The project's primary objective was to ensure clear sound coverage throughout the nave, which was difficult given the structural and reverberation challenges typical of such spaces. As in any audio project, speech intelligibility directly correlates with comprehension: the clearer the sound, the better the understanding.

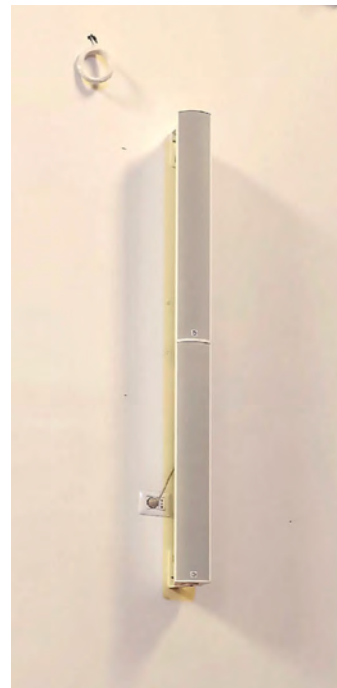
With the help of AtlasIED's Italian distributor, Leading Technologies, Guidi arranged an onsite audio demonstration featuring ALX-D loudspeakers positioned along the sides of the nave. "We conducted



listening tests with the priest and some parishioners, comparing the new setup with the old system and carried out STI measurements directly onsite," he explains. "In this case, the combination of rapid setup and accurate simulations was undoubtedly one of our strengths."

Following this, Guidi installed Aimline ALX-16D digitally steerable arrays in the sanctuary to improve speech intelligibility and provide even

front-to-back coverage. The units have been designed for applications with problematic acoustics and offer advanced steering algorithms as well as other features to give systems designers a set of tools for controlling sound in large, acoustically challenging, highly reverberant spaces. Aimline loudspeakers control directivity in the vertical axis, with the acoustic output aimed at the audience to reduce reflections from



Aimline ALX-16D arrays have improved speech intelligibility

hard surfaces. Additionally, the narrow cabinets and discreet mounting hardware help to blend the cabinets into architecturally sensitive spaces.

"Given the need for controlled directivity sound lines – and the constraints imposed on loudspeaker placement – the ALX-16D models immediately proved to be a great fit," adds Guidi. "We also upgraded the original processor and cables to take advantage of the Dante connection, which made the installation process remarkably fast."

According to the installation team, the new system has significantly improved the acoustic experience, delivering optimum speech intelligibility even in the most distant points of the nave and resolving the reverberation problems that characterised the previous system.

Father Don Maurizio noted that feedback has been highly positive: "The fact that no one made remarks about the functioning of the new system is already a very good sign."

Guidi concludes: "Considering the results and the system's outstanding performance, I will definitely keep Aimline and AtlasIED in mind for future projects with similar needs or challenges. I will especially consider this brand for high-profile projects that demand reliable, high-quality sound systems."

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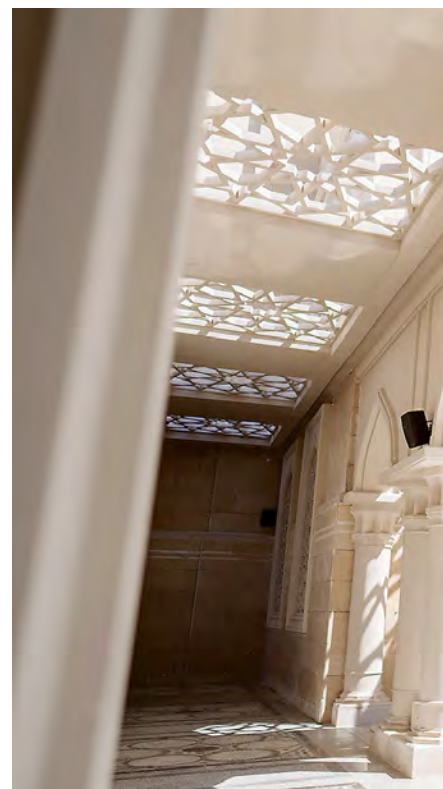
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Al-Ali Al-Azeem Mosque



JBL AWC speakers in the outdoor areas of

Sacred sound

Audio Technology is blending architectural reverence with contemporary AV solutions in Egypt

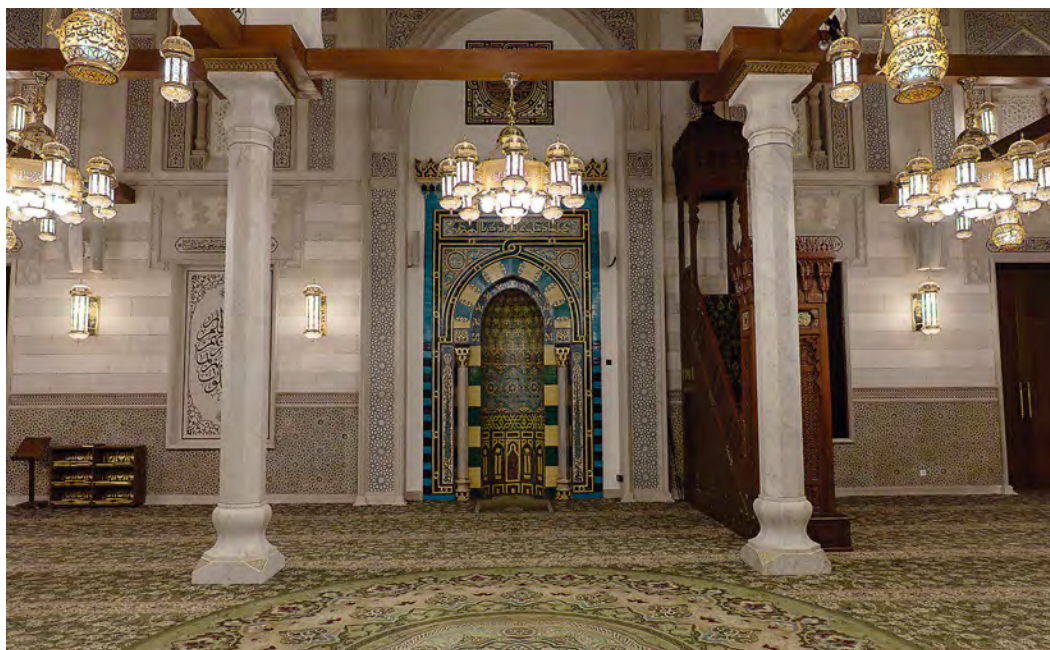
AS EGYPT NOT ONLY STEPS UP

efforts to preserve and modernise its sacred buildings but also open a host of new religious sites, Cairo-based integrator Audio Technology has been called upon by ministries in Old Cairo and Almaza to give their audiovisual systems some much needed attention.

Almaza's Al-Ali Al-Azeem Mosque and Cairo's Al Sayeda Nafissa Mosque are both landmark architectural splendours. As such, these projects both required the team to blend architectural reverence with contemporary AV solutions, showcasing the company's expertise in deploying elegant and high-performance solutions in complex and culturally significant environments.

While from a broader AV perspective the house of worship sector in Egypt is dwarfed by other domains in terms of the revenue generated, Audio Technology has gained a reputation for handling some of the country's most impressive worship projects in recent times, regardless of their denomination.

Audio Technology was the very first company to specify Holoplot's X1 beamsteering array at Misr Mosque, and was also responsible for bringing



JBL CBT 70J column array speakers at Al Sayeda Nafissa Mosque

the Cathedral of the Birth of Christ to life as the new administrative capital outside Cairo began to take shape.

"We were enlisted on these projects as we were the consultant's choice in one case and the contractor's recommendation in the other, based on our proven track record," explains

Mina Sherif, Audio Technology project manager for the Al Sayeda Nafissa Mosque. "Site visits, design walkthroughs and onsite approvals all played a part in aligning our solution with the client's vision."

Officially opened during Ramadan by Prime Minister Dr Mostafa Madbouly,

the Al-Ali Al-Azeem Mosque is Almaza's latest architectural icon, forming the spiritual and visual centrepiece of Heliopolis Square. With capacity for 5,000 worshippers, the three-floor building spans more than 8,100m² and houses an extensive range of community



Al-Ali Al-Azeem Mosque

services, including event halls, Quran classrooms, a nursery, clinic, library and dedicated spaces for women.

The challenge for Audio Technology at Al-Ali Al-Azeem was to implement a comprehensive AV and security system that would serve the needs of a truly multifunctional religious venue, while still respecting the space's architectural integrity. The team's scope included not just professional audio, but CCTV, access control, ticketing, licence plate recognition, parking systems, a broadcast AV infrastructure and smart AV classrooms.

"In Al-Ali Al-Azeem Mosque, the main challenge was the size of the venue," adds Fady Magdi, senior projects coordinator at Audio Technology. "The width and depth of the mosque meant it was critical to choose both the locations and models of speakers very conscientiously in order to produce the quality of sound required for such a monumental project."

On the audio front, the integrator turned to the Harman Professional portfolio, with JBL CBT column speakers chosen across all zones for primary reinforcement due to their consistent SPL distribution, high output and discreet form factor. "The CBT line provides both sound quality and visual appeal," says Magdi. "Their wide dispersion angle and well-calibrated sound pressure ensure coverage across both the near and far field, which is ideal for large prayer spaces."

Outdoors, the design called on JBL AWC series all-weather speakers which, according to Audio Technology, deliver the warmth and clarity needed for prayer broadcasts in open courtyards but without the harshness of traditional horn systems. Amplification is handled by Crown Audio's CDi DriveCore and XLS series, with zone management from a BSS BLU-100 processor, offering detailed signal routing and volume regulation throughout the mosque.

The choice of microphones was equally deliberate. Shure KSM8 and SM58 wired mics, along with BLX wireless handheld and lavalier options, ensure optimal clarity for Khotbah (sermons), Athan (call to prayer) and general speech. These signals are managed by a Soundcraft 12+2-channel mixer during daily operation.

To ensure performance matched expectations, AFMG's EASE 3D modelling software was deployed during the design phase. "We conducted a full analysis of direct and total sound pressures, including clarity and intelligibility metrics," continues Magdi. "This level of preparation is how we confidently deliver the high standard of work clients have come to expect from us."

Beyond audio, a state-of-the-art Video Management System (VMS) from Hanwha Vision was implemented to centralise control of the surveillance systems, ensuring integration between the

Access Control System (ACS), CCTV infrastructure and parking management system. Additionally, the TV broadcast camera panels and OB van panel have been designed in accordance with the latest industry standards.

While Al-Ali Al-Azeem represents the modern addition to the country's religious landscape, Al Sayeda Nafissa Mosque sits right at the country's historic heart, in the spiritual quarter of Old Cairo. It's a place of deep religious importance for Egyptians.

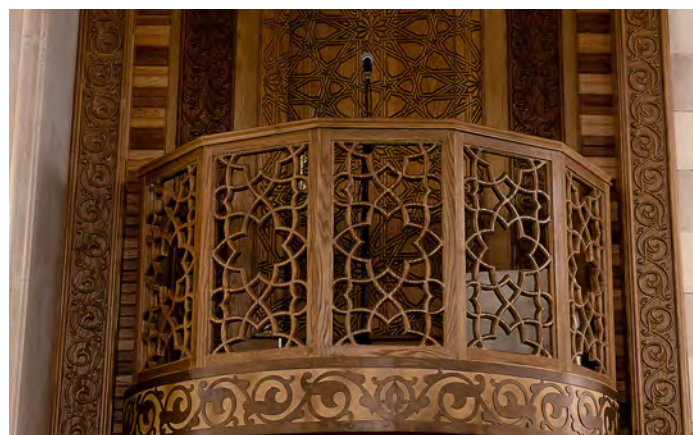
Recently renovated under the auspices of President Abdel Fattah El Sisi, it is part of the government's larger initiative to restore the Ahl Al-Bayt mosques – shrines dedicated to the Prophet Muhammad's family members.

Given the mosque's heritage, the AV design required sensitive integration that would enhance the auditory experience without disrupting the aesthetic or spiritual ambience.

controlled by a BSS BLU-100 processor in tandem with Contrieo volume interfaces. As in Almaza, Shure microphones, both wired and wireless, handle the various vocal duties, while a Soundcraft Ui24 digital mixer offers wireless control and advanced signal routing in a compact footprint.

For both projects, the choice of Harman Professional products and supporting brands was driven by a combination of price, performance, interoperability and client trust. "The light visual impact of the CBT speakers was a decisive factor, particularly in venues where design harmony is paramount," says Sherif. "The sound quality speaks for itself, but it's the blend of performance and visual discretion that made it easy to convince the client."

With both sites now completed, client feedback has been overwhelmingly positive. "The best evidence of our work is in the



Shure microphones handle vocal duties at Al Sayeda Nafissa Mosque

One of the main challenges here involved speaker placement, as the ideal installation height for the loudspeakers coincided with the Quranic inscriptions decorating the mosque's cornice. "We had to raise the speakers above the cornice and increase the tilt angle to maintain consistent coverage," Magdi recalls.

For sound reinforcement, Audio Technology once again deployed JBL CBT 70J column array speakers in the main halls, leveraging the cabinet's 16 high-frequency drivers to deliver uniform intelligibility across prayer areas. The women's prayer section features additional CBT 70Js, while CBT 50LA-1s act as monitor speakers for the Imam. For the outdoor courtyard and surrounding spaces, AWC159 and AWC62 coaxial weather-resistant models were chosen for their output and clarity.

The entire system at Al Sayeda Nafissa is powered by Crown XTi amplifiers with onboard DSP and

testimony of those who use the system daily," adds Emad Adly, Audio Technology CEO. "Careful planning, quality components and skilled execution is what defines Audio Technology, and the best evidence of our work is in the testimony of those who use the system daily."

With decades of experience in houses of worship, Audio Technology has become a go-to name in Egypt for both mosque and church AV projects, and has helped to raise AV standards throughout the country. "Worship is a key sector for us," concludes Adly. "We've built trust by consistently delivering systems that meet both spiritual and technical requirements. It's about more than just audio – it's about helping people connect through sound."

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Where sound meets spirit



St Joseph Church in Kuriachira has not only renovated its exterior but also the audio system for its 2,500 congregants

ST JOSEPH CHURCH IN

Kuriachira – a municipal ward in Thrissur, Kerala – has stood as a pillar of faith since 1931. Nearly a century later, the HOW has undergone a major renovation – not just a reconstruction of the stone building into a more modern design but also an upgrade to its PA system. The objective was to match the spiritual grandeur of the church's architecture with an equally impressive audio experience.

To bring its vision to life, St Joseph selected Kochi-based AV integrator Zacs and Phils thanks to recommendations from other priests in the parish and instructed the integrator to provide an audio system that would honour both the sacredness of the space and the technical demands of a modern worship environment. However, the sanctuary brought added complications: around 60% of the interior consists of glass walls, combined with Alaska White Lapotra granite flooring. In terms of shape, the circular layout and high ceiling presented significant acoustic and rigging challenges, and working at height to install equipment proved to be logistically complex.

"This would become one of our most acoustically complex installations to date," explains Manu Philip, business manager at Zacs and Phils. "The circular design of the space created



Behringer Eurolive B110D speakers sit atop Turbosound NuQ118B-AN and Milan M 18B subwoofers

significant sound diffusion issues, so it was paramount we positioned the speakers to provide coherent coverage throughout the room. The ceiling added to long reverberation times, while the granite floors and untreated glass walls generated excessive reflections. With over 2,500 seats in the space, the PA system needed to deliver consistent, feedback-free sound across every pew.

"The existing analogue PA system was over 15 years old with a limited frequency response and poor speech intelligibility," continues Philip. "It lacked directional control, suffered from uneven coverage and could not accommodate the dynamic range and SPL requirements of modern worship formats. Achieving even horizontal

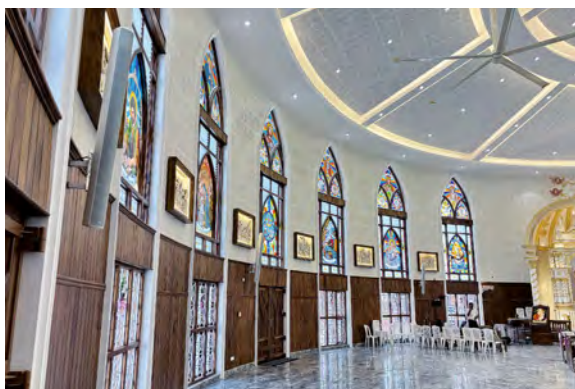
and vertical coverage while minimising reflections and feedback required us to focus on precise simulation and delay alignment."

To address reflections in the room, Zacs and Phils installed 500 GSM of polyester wool insulation above a perforated gypsum false ceiling to function as a broadband absorber, which has significantly reduced mid- to high-frequency flutter echoes and improved articulation. The wool insulation was sufficient to provide absorption coefficients to maintain an optimal RT60 (reverberation time) for speech.

Using EASE acoustic modelling and 3D simulations, the Zacs and Phils team selected a main loudspeaker

setup of six wall-mounted Tannoy VLS 30 column arrays – three each side of the nave – placed to match the seating arc, offering focused vertical control and minimal wall bounce thanks to Asymmetrical FAST Technology. Front-fill units include four Behringer Eurolive B110D 8-inch speakers that provide clarity for the front rows without bleeding into the dome. The speaker setup is completed with four Turbosound NuQ118B-AN and Milan M 18B subwoofers. "Front fills were installed atop the subwoofers to enhance coverage near the altar and first pews," adds Philip. "Low-frequency extension was critical to ensure a full-range audio experience, especially for musical content and choir reinforcement. This approach provided optimal SPL uniformity and speech intelligibility without relying on a single point source. The setup adds depth and warmth for both music and liturgy, and it reinforces the low frequencies while maintaining a natural acoustic profile.

"Tannoy and Turbosound are both part of the Music Tribe group, and provide driver compatibility, voicing coherence and amplifier matching," continues Philip. "The Tannoy VLS series features an asymmetric vertical dispersion pattern, allowing precise vertical beam control and reducing energy spill to the ceiling. The Turbosound subwoofers complement them with tight, controlled low-frequency response, ideal for reverberant church environments."



Tannoy VLS 30 column arrays provide focused vertical control



Signal processing is courtesy of Symetrix Jupiter 8 DSP which handles EQ, time alignment and zone management and has been finely tuned for the church's unique acoustic fingerprint. Two Lab Gruppen PDX 3000 amplifiers have been installed to drive the distributed speaker and subwoofer arrays, chosen by Zacs and Phils for their high-efficiency Class-D amplification and DSP integration capabilities. Monitoring is carried out by four Behringer B112D monitors – two for the choir and one each for the altar and bema. A Behringer X32 compact mixer enables control of the entire audio system.

The microphone inventory consists of two Audio-Technica ATW-2120B (2000 Series UHF Diversity System) wireless handheld units, 10 Audio-Technica MB3K cardioid dynamic microphones for the choir and lay leaders, and two Audio-Technica ES925/21/B + ESE-C condenser gooseneck microphones combined with one Audio-Technica ATW-11HH2 with an AT829CW S-1 lavalier microphone for the priests and lectern use. Post-installation system tuning and room analysis were conducted using Rational Acoustics' Smaart v9, allowing the integrator to optimise EQ, delay alignment and phase response.

"The transformation has been incredible," continues Philip. "The

church now benefits from crystal-clear speech from the altar to the entrance, and balanced, immersive music without echoes or hotspots. Even during full-capacity services, we managed to eliminate all feedback with the new setup. The clergy and parishioners were genuinely surprised by the improvement in clarity and tonal balance. The feedback has been overwhelmingly positive, with many commenting that it was the first time in years they could clearly hear every word and note, regardless of seating location. Many thanks to Fr Vadakoot Thomas, Convenor Mr Paul Alukka and the entire committee who entrusted us with their vision."

The renovation of St Joseph Church wasn't just about restoring such a sacred space – it was about reimagining how the space sounds. The Zacs and Phils team has provided the historic sanctuary with a PA system that provides power, clarity and reverence. And the work doesn't stop there – prewiring and conduit routing have already been completed for future outdoor public address zones, with the church committee currently evaluating all-weather loudspeaker options for external coverage, such as during processions or special liturgical events.

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Clarity and control

Church360 has chosen Meyer Sound's Panther line array to elevate the worship experience



Images courtesy of Jasmine Anwer

CHURCH360 IN GRAND PRAIRIE,

Texas, has transformed its audio experience with the installation of a Meyer Sound Panther large-format linear line array system. The new setup supports a wide range of programming for the church's 2,700-seat main sanctuary – from weekly worship to concerts and conferences – and represents the culmination of an eight-year vision led by the church's technical director and lead audio engineer, Steve Constantino.

"When I first started here, the existing system was already at the end of its life," explains Constantino. "We had significant inconsistencies across the room. Every seat sounded different. My goal was to give every seat the same experience – the same clarity and energy."

Constantino, who has touring experience with companies such as Clair Global, approached the project with an eye for performance and detail. Church360 had previously installed a Meyer Sound Leopard system in a student ministry building on campus. "Everyone loved the sound of that room. The clarity, the fullness – we knew we wanted that on a bigger scale," he adds. "I went to a Panther demo a couple of years ago. When I heard it, I thought, 'wow, this box is a game-changer'."

The final design centres around dual arrays of 10 Panther loudspeakers

as the main hangs, supported by Leopard arrays for side coverage. Ultra-X20, Ultra-X40 and UPQ units provide fill and balcony support, while the low end is handled by 17 2100-LFC low-frequency control elements. The system is driven by 11 Galileo Galaxy processors, with a Milan AVB network supporting signal transport and system monitoring, plus a full analogue backup. "I wanted a system that wouldn't be anywhere near its limits," Constantino continues. "We host concerts, conferences and special productions. I needed something with headroom, stability and coverage."

The entire system was designed by Constantino and installed in

collaboration with David Leuschner of AV integrator Pro Audio Video, with support from Entertainment Manufacturing Group, which provided network cabling and motorised rigging inspired by touring workflows. All components are flown on chain motors for full ground access and easy service.

The system was tuned in two phases: an initial deployment to meet an Easter deadline, followed by a secondary round of refinements once the team had a few weeks of hands-on experience. In the process, two additional Ultra-X20 front fills were added to perfect coverage in the front rows. "It was worth every bit of

effort," says Constantino. "We had staff members poking their heads into the room during tuning week, saying, 'wow, this sounds great'."

To Constantino, one of the most striking improvements is in speech intelligibility. "It doesn't sound like the pastor is coming through a PA system – it sounds like he's just talking to you in the room. And the reduction in hearing fatigue is huge. Even after loud events, you don't walk out exhausted."

In addition to its modern PA system, the project includes a nod to Meyer Sound's legacy product line. When Constantino identified the discontinued CAL column loudspeakers as the perfect fit for the lobby, Meyer Sound agreed to manufacture a custom pair.



The main hangs consist of 10 Panther loudspeakers



Ultra-X20, Ultra-X40 and UPQ units provide fill and balcony support

The upgrade has also improved the audio in Church360's livestream, which reaches more than 2,500 people weekly. "I'm not fighting the PA anymore," smiles Constantino. "What I hear in the room matches what I'm sending out."

Leuschner notes that the success of the project reflects a uniquely collaborative process. "That's what makes Meyer Sound different," he concludes. "This was a rare project where the integrator, manufacturer and end user were all aligned. And when that happens, it's magic."

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Gain staging: start strong, stay clean and finish smart

Sound engineer **Erwin Balangue** considers setting gain staging correctly in the first part of his two-part series



Good gain staging sets you up for a clean, dynamic mix

THIS ARTICLE IS PART ONE OF a two-part series about gain structure in sound systems. In this first installment, we'll focus specifically on setting gain staging correctly on your mixing console, whether analogue or digital. The second article will expand the topic to include gain structure across the entire signal chain, from input to output.

If you've ever wanted your mix to sound clearer, more consistent and more musical, with healthy and robust input signals, this one's for you. One of the most significant steps towards achieving a great-sounding worship mix is understanding the art of gain staging. It's one of those behind-the-scenes fundamentals that, once dialed in, makes everything else work better – EQ, compression, effects and fader balance. On the other hand, if your gain staging is inconsistent, no amount of plugin wizardry can fix it.

In this article, we'll break down what gain staging is, why it matters, what mistakes to avoid and how to do it right. Whether you're in charge of managing the sound on a weekly



Understanding the art of gain staging is the key to great-sounding worship

basis or training volunteers, these tips will provide a solid foundation to build upon.

Starting strong

So, what is gain staging? It is the process of setting the proper signal level at each stage in the signal chain – from your microphone input

to your mixing console's processing blocks, and your main outputs. The goal is to maintain a healthy signal strength that is clear and clean, way above the audio equipment's inherent noise, but not so strong that it distorts or clips.

When gain is set correctly, every subsequent processing step – such as EQ, compression, effects and

volume control – works as intended. A poorly staged signal can lead to feedback, muddy sound, distortion or weak tone. Good gain staging sets you up for a clean, dynamic and musical mix.

The goals of gain staging are maintaining clarity without distortion; maximising headroom (space before clipping); ensuring your processors, EQ and compressors respond musically; and making the mix more consistent and easier to manage.

How gain staging affects the worship experience

Proper gain staging not only makes your job easier but also directly affects how you mix the worship service and, ultimately, the worship experience. By optimising audio signal levels through your mixing console, you ensure your worship team's monitors receive a strong audio signal. Musicians feel more confident when they can hear themselves clearly in their monitor wedges or IEMs. Livestream audio also improves significantly, especially during dynamic worship segments where levels shift from quiet prayer



Musicians feel more confident when they

to full-band praise. Ultimately, the congregation stays engaged because the mix sounds clear, focused and free from distractions. Gain staging is one of those technical skills that support the spiritual mission: removing distractions and enabling the message to come through clearly.

Common mistakes in gain staging

We've all committed one or two of these mistakes at some point:

- Setting gain by ear only, without monitoring the meters, can lead to inconsistent levels.
- Turning the fader up too high because the input signal is too soft causes the noise to rise along with the signal.
- Turning the gain too high and lowering the fader may make the channel sound okay at first, but it will clip when the dynamics increase.
- Setting a “universal” gain level for all audio sources, ignoring the fact that different microphones and instruments require different gain settings.

Staying clean: how to properly do gain staging

Here's a practical, repeatable method to get your gain structure right on any console, ensuring consistent results. Start with the channel gain knob, fader and aux sends set to infinity, and EQ settings flat.

Step 1: press the channel's PFL (pre-fader listen) button. Doing so enables your meter to reflect the channel's



When gain is set correctly, every subsequent processing step works as intended

incoming signal level at the preamp stage, while simultaneously soloing the channel's audio on your monitor headphones.

Step 2: ask for a performance-level signal. Have the singer sing or the musician play their instrument a few lines of a song from the set list they'll play at the volume they'll use during the worship service. This volume level is referred to as the “performance level”. Encourage singers and musicians to perform like it's an actual worship set. Loud singing, shouts of joy and all the dynamics – not just whispering “mic check, one, two”.

Step 3: adjust the gain knob. Turn the gain knob clockwise and observe the meter on your console. On analogue consoles, aim for signal peaks around 0dBVU on the meter. On digital consoles, aim for an average of -18dBFS with peaks between -12dBFS and -6dBFS. This is generally known as line level. Ensure

you're not hitting the red (clipping), but also not barely touching the meter.

Pro tip: Watch how loud the singers get on sustained notes or the musicians on significant musical hits – these often push the signal past your sweet spot. Reduce the gain if the meter reaches the red or when the sound becomes distorted.

Step 4: set your channel fader to unity (0dB). Bring the fader to the unity mark (usually marked 0 with a thick line running across the mixing console's surface). This is your mix reference or starting point. You're not mixing yet – just preparing for level balancing later. Why does this matter? Fader unity allows you to adjust the volume up or down during the mix without changing your gain structure. This provides the finest control over volume, the highest signal-to-noise (S/N) ratio and ensures your incoming audio level is optimised to drive the processors later on.

Step 5: add EQ, compression and effects. Once the gain is clean, shape your tone and dynamics accordingly. Don't “fix” what is just bad gain. Signal processors have an optimal input level; feeding them with a very high signal level can lead to signal distortion. On the contrary, sending it with too little signal, the processor may not function as intended.

Quick example: if the vocals sound muffled and you reach for EQ, and begin pushing up frequency levels before checking the gain, you might be over-processing a weak signal. Or, after dialing in the needed compression, apply just the right amount of makeup gain so that the compressor's output matches the input level.

Step 6: send the required signal level to the performer's monitor/IEM. Ensure that the main auxiliary bus output is also set to the unity mark

(0dB), and the singer or musician is receiving just the right amount of volume in their monitor wedge or IEM.

Step 7: repeat for each channel. Follow this process for every microphone and instrument. Yes, it takes time, but it saves you time later during the mixing process. The more often you practise this, the more muscle memory kicks in and you'll get more proficient at it. This process is especially crucial if the worship team rotates often, you're not using presets or you're training volunteers who default to “eyeball mixing”.

Step 8: recheck during rehearsal or the worship service. People sing louder during worship than they do during soundcheck. Revisit the gain during rehearsal or early in the service. Also, recheck the gain if someone swaps instruments or mics, a guest preacher, singer or musician joins, or you switch between handheld and headset mics.

Finish smart

Distribute all your input channels across available VCAs or DCAs. Route audio channels of the same frequency range to your subgroup busses and apply EQ and compression as needed before sending them to your main (L-R) mix busses. Continuously monitor the main mix bus level on your mixing console, aiming for approximately 0dBVU (analogue) or -18dBFS (digital), while avoiding clipping. Adjust levels on subgroup busses as necessary to maintain proper main output levels.

Remember to start strong – getting gain staging right sets the foundation for everything that comes after. Aim for a level that utilises the dynamic range of your mixing console, without exceeding its limits. Stay clean – by maintaining a strong signal on the early stage of your signal chain, you ensure that you keep system noise to a minimum, your mix becomes cleaner, more controlled and easier to balance. Finish smart – whether you're mixing live, for broadcast or both, clean gain helps your whole team sound better, feel more confident and ensures that your overall level is appropriate for the intended listening environment. It's not just about audio quality – it's about worshipping without distractions.

In the following article, we'll look at gain structure across the entire signal chain. Now that we've optimised the mixing console, we'll examine how amps, processors and speaker systems all fit into the overall picture.



Image courtesy of Cottonwood Creek Church

can hear themselves clearly

Built to last

Media Mentoring's **Graeme Spencer** looks at why a router (and a smarter strategy) could save your Sunday

THERE'S A PARTICULAR

moment that still lives rent-free in my head: I was in a cramped little TV truck directing a live four-camera broadcast in the UK. The worship was powerful, the camera team were killing it and the vibe was great, and then it happened ... the switcher died. No restart, no backup. It was the kind of tech failure that every one of us dreads. But here's the twist: we stayed on air.

Why? Because we had a video router in the system. It wasn't flashy and it wasn't perfect, but it provided me with enough flexibility to keep the live broadcast going. The truck engineer suggested we "cut" the rest of the broadcast on the router and, with the push of a couple of buttons, rerouted the programme output to come from the router. It was non-sync and glitchy for sure and, of course, we were limited to simple cuts, but we stayed on air. Without that router, the entire production would have gone dark.

doesn't wow the senior pastor. It just works – quietly, faithfully. It's the central nervous system of your production world, routing signals from cameras to switchers, to encoders, to monitors or to whatever comes next. Here's what makes routers such an unsung hero in church media:

- Redundancy: if your switcher dies, you can still route a feed to your stream.
- Flexibility: easily integrate new gear without re-cabling the entire building.
- Simplification: clean signal flow with less mess and fewer failure points.
- Futureproofing: as your needs grow, a router helps everything work together seamlessly.

The router doesn't just make things easier; it gives you breathing room. And when things



Ross Video's Ultrix integrates routing, signal processing and switching



Flock Audio's Patch LV provides 24 channels of analogue audio routing

It was the technical equivalent of a "Get Out of Jail Free" card in Monopoly.

That day taught me a powerful truth: in live production, your setup is only as strong as your plan B. And that's where routers and a modular mindset earn their place in your church's tech strategy.

Why routers matter more than you think

A video router isn't the sexiest piece of gear in your rack. It doesn't do fancy transitions. It

go wrong (and they **will** go wrong), it could be your lifeline.

All-in-one vs component: what's best for your church?

Now, let's talk setup philosophy. The rise of "all-in-one" systems has changed the game. Tools like VMIX, TriCaster, OBS and many others offer a lot in a single box: switching, graphics, playback, streaming and recording, all from one interface. They're tempting, especially for smaller churches

or volunteer-led teams. With a tight budget and limited staff, who wouldn't want one piece of kit to rule them all? But here's the thing: the convenience comes at a cost. When everything is tied to one device, if that device crashes ... you're done. I've seen it – I've lived it. And the problem with "all-in-one" is that when it fails, everything fails. That's why I advocate for a component-based approach. Split your system into logical chunks: a switcher for vision mixing; a separate streaming encoder (hardware

or a dedicated computer); and an independent playback and graphics system.

Yes, it might cost more upfront. But it also gives you stability (one failure doesn't kill the whole system), scalability (you can upgrade individual parts over time) and resilience (easier to troubleshoot and recover when something goes wrong).

The hybrid sweet spot: build modular around a router

Now, before you throw out your VMIX (or other) setup, don't panic. I'm not anti-all-in-one. I've used them and still recommend them in certain situations. But here's the key: don't make it your entire system. For instance, I recently produced a live broadcast centred around a VMIX system, but we also added layers of redundancy so that if the VMIX died, we would have stayed on air.

That's where building around a router can prove beneficial. Use your "all-in-one" system, but connect it through a router that

allows rerouting when necessary. Even if you don't have the budget for a complete modular setup, a router gives you that plan B you'll be thankful for. It's like carrying a spare tyre – you don't think about it until you need it.

Planning for failure = planning for ministry

Here's a truth we sometimes forget: tech failures don't just affect our gear, they impact our ministry. When a stream fails, someone misses church. When your graphics freeze, visitors feel confused. When the audio cuts out, the Gospel doesn't land. This is why the design of your technical system is vital.

A few real-world recommendations you will thank me for later

- Add a router: make it central, accessible and train your team on how to use it.
- Separate your streaming computer: don't combine it with ProPresenter or your switcher.
- Keep a basic OBS (or other) setup on a backup laptop: it



The Blackmagic Design Videohub 12G can be used to connect and route any combination of SD, HD and Ultra HD

might not be flashy, but it will get you off the hook.

- Run drills: simulate failures and practise recovery. Build muscle memory. This can be particularly useful if you have a large volunteer team.
- Draw your system: make sure you know how your system is wired and your team knows too. Label cables and create a troubleshooting sheet.
- Have a checklist you go through before every broadcast so you know everything is working and ready to go, and can troubleshoot issues before they become a problem.

Build what reflects your mission

Churches often start with the wrong question: "What's the cheapest way to stream?" Try this instead: "What system best supports our mission, even when things go wrong?" Sometimes that means fewer cameras but more redundancy. Sometimes it means holding off on fancy graphics so you can afford a decent router. It always means thinking ahead, not just for this Sunday, but for the next few years to come. Your livestream is a lifeline for some – treat it like one.

Room to grow

One of the unsung benefits of a modular, router-based setup? Growth becomes easier. Want to expand into youth or overflow rooms? Add new camera angles? Integrate Zoom calls or remote guests? With a router at the centre, you're not starting from scratch. You're just adding on. Think of your system as laying the right foundations; what you build today should support tomorrow's vision.

Final thoughts: it's not about perfection

Your tech setup won't be perfect. You'll still have those Sundays where the feed stutters or the camera battery dies. That's life. But what you can do is prepare. Build smart. Build modular. Build with the confidence that when, not if, things go sideways, you'll have options. Let your router be the quiet hero of your Sunday service. You may never see it on camera but, when it saves the day, you'll know it's earned its place.

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Software tools for HOW lighting designers and technicians

John Black looks at some of the software tools that can make programming more creative and intuitive

IN TODAY'S WORSHIP

environments, lighting design has become far more than a means of illumination – it's an integral part of how houses of worship tell stories, guide emotions and create atmosphere. Whether it's a quiet, meditative moment during prayer or a high-energy worship set filled with music and movement, lighting plays a critical role in reinforcing the message. For lighting designers and technicians, this means choosing the right software tools that not only allow creative freedom but also meet the practical needs of worship settings – spaces that often rely on volunteer teams, limited budgets and multipurpose environments.

House of worship lighting designers and technicians typically engage in three interconnected stages of work: designing, documentation and controlling lighting systems. There are tools that can specifically assist designers and technicians in each of these stages. While high-end theatres or concert venues might rely on complex control consoles and CAD-based design, houses of worship benefit most from systems

that balance power with simplicity.

The right software can streamline the creative process, make programming more intuitive and empower even inexperienced volunteers to contribute meaningfully.

Let's take a look at some of the software tools that are available to lighting designers and technicians.

Software for design and documentation

For designing lighting systems, professionals often turn to visual planning and simulation tools. These platforms allow designers to draft detailed lighting plots, simulate real-time effects and test ideas virtually before installing a single fixture.

Vectorworks Spotlight is one of the most respected tools in this space, enabling designers to create full-scale 2D and 3D drawings of a sanctuary, complete with lighting fixture placements, rigging details and DMX patching. It's particularly effective when paired with Lightwright, a program that manages the technical paperwork side of lighting design – keeping track of channel

assignments, dimmer numbers, fixture types and colour selections. Vectorworks can also be paired with Vision, a program used for real-time lighting visualisation, allowing you to see a virtual representation of your lighting when connected to a control console and program lighting without the actual rig.

Another powerful design tool frequently used in houses of worship is Capture, a real-time lighting visualisation program. Capture allows technicians to build a virtual model of the worship space and simulate how lighting scenes will look during a

live service. This is especially useful for special productions such as Christmas or Easter services, where lighting designers often experiment with more elaborate looks. Like Vision, Capture can be connected to live control software, letting users build and refine cue sequences in a virtual space before running them onstage.

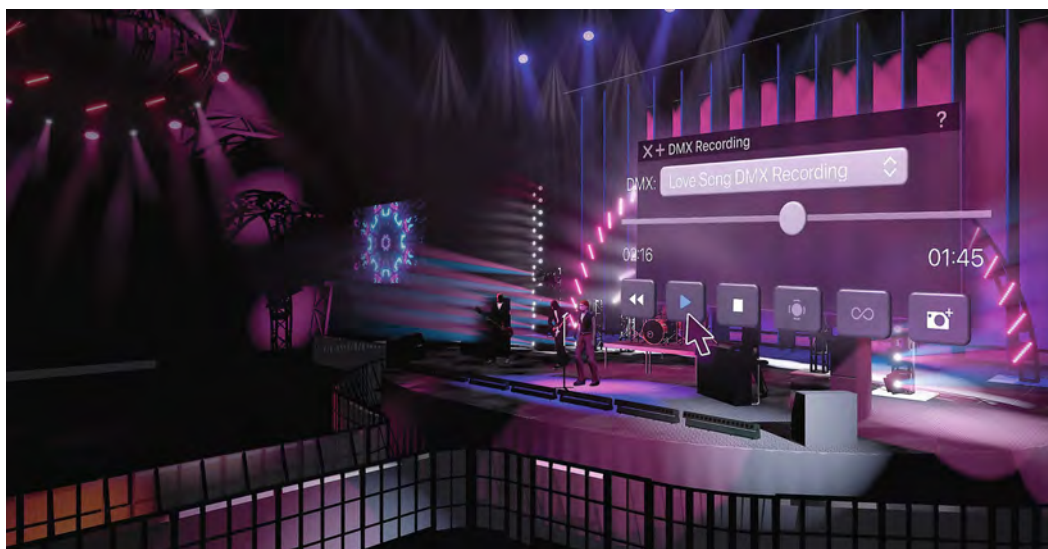
In larger venues where more immersive environments are required, designers might also use WYSIWYG (What You See Is What You Get), a combination design and control suite that provides visual feedback and technical documentation in one place.

Along with design, it is important for lighting designers and technicians to organise information about each lighting fixture – what it does, where it's located, how it connects to power and control systems, and what its purpose is during a service.

As mentioned above, Lightwright remains a standard in this area because of its ability to handle extensive fixture inventories while staying clear and organised. Particularly in houses of worship that modify lighting setups between services or seasons, having a centralised tool to manage this data prevents confusion and improves efficiency. This software is especially appreciated by technical directors juggling multiple services or



The NX Wing is the complementary USB control surface to Obsidian Control Systems' ONYX platform



Vectorworks Spotlight allows designers to create full-scale 2D and 3D drawings of a sanctuary

coordinating teams across different venues.

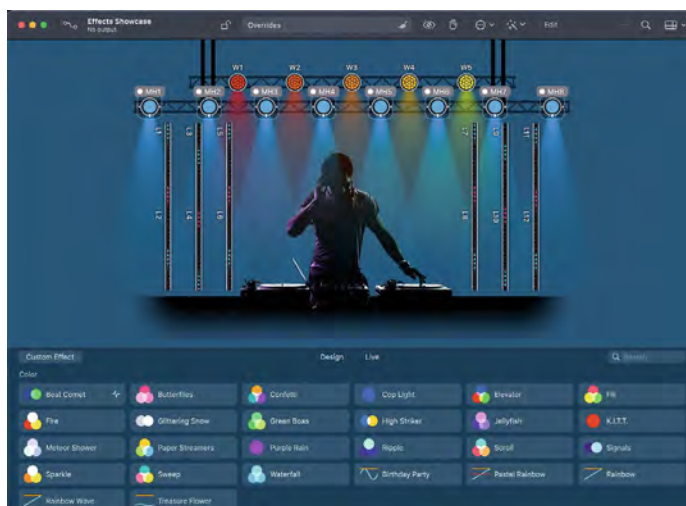
In addition to traditional lighting-specific programs, general-purpose platforms like Trello, Notion or Google Sheets can also help lighting teams stay organised. Houses of worship often run multiple services with rotating volunteers, and having accessible, cloud-based tools for cue sheets, setup instructions and fixture notes ensures consistency regardless of who is working a given Sunday.

Software for lighting control

Perhaps the most vital software tools for lighting are those used for live control. Many venues invest in a dedicated lighting control console for controlling their lighting rigs. These often include offline editing versions of their operating systems, allowing lighting designers and technicians to edit and work with show files remotely, as well as run show files from a PC-based system.

For smaller venues or those with more limited budgets, there are also software options for controlling lighting rigs without a dedicated lighting console. These systems allow designers and operators to trigger lighting cues during worship, adjust levels on the fly and transition seamlessly between different service elements.

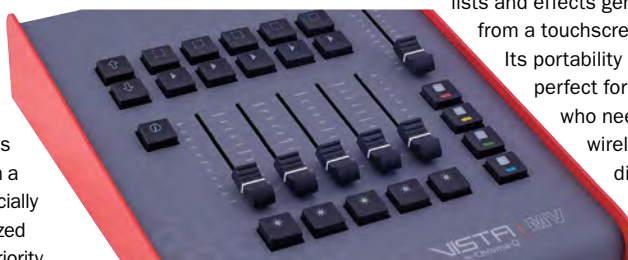
One popular solution, especially for Mac users, is LightKey. Designed with user-friendliness in mind, LightKey offers a drag-and-drop interface, built-in effects, cue lists and live control options – all from a Mac desktop or laptop. It's especially valuable in smaller to medium-sized venues where ease of use is a priority and where programming needs to be handled quickly and clearly.



LightKey offers a drag-and-drop interface with built-in effects

On the Windows side, ONYX by Obsidian Control Systems is a powerful lighting control platform that provides a more in-depth feature set for larger venues with complex rigs. ONYX supports multiple DMX universes, advanced fixture profiles and intricate cueing options. Though the learning curve is steeper, it's a worthwhile investment for teams that need precise control over moving lights, colour effects and synchronised cues for multimedia productions.

For designers who prefer timeline-based control, Vista by Chroma-Q offers a visually intuitive lighting control experience. Its interface resembles video or audio editing software, allowing users to build cue lists using drag-and-drop functionality.



Vista by Chroma-Q provides a more visual lighting control experience

This is particularly advantageous in houses of worship where volunteers may be more comfortable with visual workflows rather than traditional programming. Vista's companion app for iPad enables remote access to cue control and fixture focusing, a feature that many houses of worship find invaluable when tech directors need to make adjustments from within the worship centre, rather than from a control booth.

One of the most mobile-friendly options available is Luminair, an iOS-exclusive lighting control app that runs entirely on an iPad or iPhone. Designed for professional use, Luminair connects to lighting systems over Art-Net or sACN and offers full control of fixtures, cue lists and effects generation – all from a touchscreen interface.

Its portability makes it perfect for technicians who need to operate wirelessly or from different areas of the sanctuary, and its deep feature set means it's more than

capable of handling complex lighting systems.

QLab, a program frequently found in theatrical events, provides a licence option for controlling lighting instruments by sending out lighting control data over Art-Net. One of the unique benefits of QLab is that when approaching special events such as Christmas or Easter productions, all technical cueing can be triggered and synchronised together from within a single platform (audio, lighting, projections, timecode, etc.). QLab also features an iPad/iPhone companion app for remote triggering and control.

Venues already using ProPresenter for media and lyric display can also benefit from its communication capabilities. Though ProPresenter does not natively output signals to control lighting equipment, a single operator can simultaneously trigger lighting cues on a connected control console and local media cues – a helpful feature for smaller teams.

In conclusion

Altogether, lighting software has become an essential part of production. From the early stages of planning and design to real-time cue execution, software tools provide lighting designers and technicians with the means to enhance worship environments with beauty, precision and flexibility. What once required expensive hardware and steep learning curves can now be achieved through approachable, versatile tools – many of which can be run from a laptop or tablet.

Though this article does not provide a comprehensive list of available tools, the right combination of design software, documentation tools and control software can make lighting a more accessible and transformative part of worship for the entire lighting team.



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L-R: Arbane Groupe's Mathieu Pobeda, Frédéric Grelier and Hugo Payen

Engineered for efficiency

Arbane Groupe's **Mathieu Pobeda** details how APG Audio has taken its flagship line array in a new direction

AFTER MORE THAN A DECADE of field success, APG Audio's original Uniline line array system has earned its place in the large venue sound reinforcement market. With a house of worship reputation spanning decades, APG has been installed in some of the most prominent religious venues around the world, including the UAE's Sheikh Zayed Grand Mosque. A Uniline system installed at Lourdes' Sainte Bernadette Church in 2016 continues to operate reliably to this day. Demonstrating the brand's emphasis on longevity, the French manufacturer was recently called upon to upgrade a set of its own speakers that had remained in daily outdoor use there for more than 30 years.

Launched in 2010 as the industry's first modular solution with mix-and-match flexibility, the Uniline series appealed to users seeking scalability

without investing in separate product families. Five years later, APG launched the Uniline Compact, a small "line source" whose aim was to offer maximum versatility for the widest range usage. But with changing expectations in live sound, APG parent company Arbane Groupe recognised it was time for something new.

Developed over several years, the new Uniline Max is not designed to make headlines or compete on scale, says Arbane Groupe technical director Mathieu Pobeda. Instead, it addresses the evolving requirements of mid-sized rental companies, production houses and venues – including houses of worship – which now make up the core of APG's user base. For these clients, reliability, clarity and ease of deployment take priority over maximum SPL. The house of worship market itself has



The amplifier racks have been designed around common 32A single-phase connections

shifted, notes the technical director, with increasing demand for systems that can be used both indoors and outdoors, particularly in regions such as Africa where music plays a central role in worship.

"We wanted to make a statement, but the aim with Uniline Max has not been to attempt to outgun the industry's biggest players," explains Pobeda. "They can have the big world stars, the global tours and megafestivals. The reality is that the vast majority of our industry is made of and thrives on more humble events and entities. Uniline Max is about giving our users a serious performance tool that's simple, efficient and versatile. The people we're catering for don't want complexity, they want something that just works. The goal was to modernise the original solution in all regards – visually, acoustically and operationally."

Although the original Uniline platform is still highly respected, its angular aesthetic and complex rigging had begun to show their age.

"Scenographers don't want visible systems anymore," says Pobeda, "and, as crews have got smaller, everything needs to be faster and easier to manage."

Given Uniline Max was born from the need to modernise the look, simplify deployment and better match the expectations of today's operators, extensive user feedback was vital from the outset. "We began this simplification by unifying the controller/amplifier platforms to standardise the user experience," Pobeda recalls, referencing a visit to a London client that quickly helped solidify his determination. "She loved the sound of Uniline – the clarity and the dynamic range – but told us it was simply too difficult to rig with a small team. That was a wake-up call. We heard over and over again that our systems sounded fantastic but were becoming too complicated to deploy."

One of the first changes, therefore, was to streamline the system architecture. While the original Uniline included four interchangeable modules, Uniline Max simplifies this down to just two: a full-range main cabinet and a 21-inch LF extension.

"Modularity sounds good on paper," adds Pobeda, "but, in practice, too many options can mean more rigging, more amp channels and more headaches. For the kind of customers we're targeting, simplicity ultimately wins. A significant part of that simplification came through user feedback."

A complete rethink of the mechanical design was crucial – considering everything from rigging to transport hardware. "We built the rigging system for Uniline Max as a sort of exoskeleton, separate from the cabinet body," explains the technical director. "That means that if we ever need to update or replace a mechanical component, it doesn't affect the acoustic enclosure. It also makes recycling much easier at the end of life, which is of increasing importance for our customers, and a core value for us."

This focus on sustainability became another guiding principle. Gone is the polyurethane construction material, common in previous parts of the system. In its place is high-pressure ABS plastic, produced using precision injection moulding. "It's better for manufacturing consistency and far more environmentally responsible," says Pobeda. "You can't do anything with broken polyurethane cabinets. You can't even melt them down as they produce toxic fumes. With ABS, elements can be properly recycled."

Despite the operational emphasis, Uniline Max is no slouch on the technical front. A key innovation lies in its coaxial mid-high arrangement. "We've been using coaxial designs since the APG 3000 and 6000 series," recalls Pobeda. "But for Uniline Max, we completely redesigned the waveguide and phase plug to control path length and directivity even more precisely."

The result is Pobeda's self-designed and newly patent-pending SIGMA waveguide, which emits both mid- and high frequencies through a single horizontal slit. "That alignment helps maintain consistent directivity and reduces phase issues. It's a simple concept, but very effective," he explains. "The first thing our test users noticed was how smooth the horizontal dispersion felt, even at longer throws."

Unlike most competitors who start from theoretical acoustics, Pobeda took a more practical path. "The first constraint for customers is the truck," he notes. "We started with the physical dimensions, in other words what fits in transport vehicles, and then designed the waveguide around that."

The result, he says, is a gently curving internal geometry with minimal energy loss and clean phase alignment between cabinets. Creating that result required detailed software simulation. "We only needed four waveguide iterations thanks to today's acoustic prediction tools," says Pobeda. "But, unlike the waveguide, for the rigging system you can't rely on software. You need to build everything and physically test it. Mechanical ergonomics – how the

system feels and handles under load – can't be accurately simulated. So that's where most of our prototyping efforts went."

One other major breakthrough came in the form of a hybrid rigging system that supports both tension and compression. "This allows us to offset the natural compromise in having the system's rotational point deeper inside the cabinet, rather than at the front," he furthers. "Other brands make that compromise too, but our solution lets us retain the horn-loaded sound performance we want without sacrificing usability."

While many brands chase maximum SPL and throw distance, Uniline Max is instead tuned to real-world priorities. "We're not trying to reach kilometres away with the throw," says Pobeda. "We want balance, punch, clarity and coverage, but also ease of use, manageable weight and responsible energy use. These are just as, if not more, important."

Power distribution is a key example. The system's amplifier racks were designed around common 32A single-phase connections, avoiding the need for industrial three-phase setups. "You can still split across phases if needed, but we wanted the default to suit venues and crews without a high-power infrastructure."

The same thinking applies to service and logistics. "A lot of our choices were informed by truck dimensions," he admits. "It sounds unromantic, but if your boxes don't pack well, everything suffers – storage, transport costs, load times, everything. We started with those constraints and built upwards."

As technically accomplished as Uniline Max is, Pobeda lights up most when discussing the team behind the product. "For us, this isn't just a new speaker system, but a statement of how far APG has come," he says. "While I brought some discipline and experience gained from decades of loudspeaker design when I joined the company five years ago, the whole team has really levelled up. We've built Uniline Max together, and that team spirit extended to every part of the company – from design and production to supplier coordination and customer service."

"Our production supervisor told me he was proud to see a product that clearly considered the needs of the people on the factory floor. That kind of feedback is gold. It's easy to design a great-sounding system. It's much harder to make one that's great to build, ship, service and recycle."

All in all, Uniline Max came together in just 18 months, a remarkable achievement given the depth of development. Some technologies, like the amplifier platform, had been prepared years earlier, but development of the system as a whole was fast-tracked thanks to Pobeda's clear vision and close team coordination.

The result is a solution that not only reflects APG's technical expertise but also its maturity as a company. "It's not the most powerful system in the world. But it's honest, effective and built with care," the technical director concludes. "And I think our users feel that. Rather than just max out the SPL, we maxed out every part of the process."

www.apg.audio
www.arbane-groupe.com



Uniline Max consists of just two modules – a full-range main cabinet and a 21-inch LF extension

Uncompressed video

Stephane Tremblay, president, SDVoE Alliance, looks at how SDVoE technology can help houses of worship create a simplified infrastructure



There has been a noticeable increase in integrators exploring products from SDVoE member manufacturers for their HOW installations

What advantages does SDVoE technology bring to HOWs?

SDVoE technology brings a range of advantages that make it an ideal choice for houses of worship. First, it offers zero-perceptible latency, which is critical during live events. Any delay between live action and what is displayed on the screen can be distracting for the audience and reduce the value of using video displays altogether. With SDVoE, latency is so low that the projected image and the real-time action are virtually indistinguishable, maintaining the immersive experience for worshippers.



Stephane Tremblay

In addition, SDVoE delivers high-resolution, uncompressed video that enhances the visibility of scripture text, speaker details and other visual content, even on large displays. The technology delivers high-quality sound, which is essential in large worship spaces where audio intelligibility can be a challenge. By prioritising clear sound, houses of worship enhance engagement and ensure that everyone can hear and understand the message being delivered.

Another important advantage is that SDVoE maintains synchronisation between image and sound. When audio and video fall out of sync, the experience becomes jarring and less impactful. SDVoE's architecture makes sure that both arrive together, preserving the natural flow of the presentation. Finally, SDVoE systems are easy to reconfigure. Many houses of worship host a variety of events, from regular services to weddings, concerts and community gatherings, which require different audiovisual setups. SDVoE's centralised API makes it easy to reconfigure the system quickly and efficiently, reducing setup time and technical complexity.

Why is this method of signal transport more effective for churches?

SDVoE is a more effective signal transport method for churches primarily because of its reliability and future-proof architecture. One of the most significant advantages is its extremely high mean time between failures (MTBF). SDVoE-based receivers are designed with low power consumption and passive cooling, resulting in an MTBF of over 500,000 hours. In contrast, many other technologies rely on FPGA-based systems that require fans for cooling due to higher power needs, resulting in a much lower MTBF of only 30,000–50,000 hours. The 10-fold difference in reliability significantly reduces the frequency of equipment failure and, as a result, minimises downtime and the need for costly technician visits, which is an important consideration for churches that may not have technical staff readily available.

Additionally, SDVoE offers strong future-proofing advantages. As its name implies, SDVoE stands for Software Defined Video over Ethernet, meaning the system is configurable and upgradable via network updates. The ability to enhance functionality through firmware updates helps delay obsolescence, allowing churches to keep their AV systems current without needing to replace hardware.

Additionally, SDVoE runs on a 10G Ethernet infrastructure, which is a scalable and future-ready backbone. Ethernet technology continues to evolve and expand, making it a smart investment for long-term growth. The two key benefits, specifically reliability and forwards compatibility, make SDVoE an especially effective solution for the demanding and evolving needs of modern churches.

Are you seeing an increase in house of worship installations that are using products from SDVoE member manufacturers?

There is a noticeable increase in house of worship installations that are turning to products from SDVoE member manufacturers. A compelling example is the Zurich Opera House, which has requirements similar to many worship venues in terms of live performance, image quality and system flexibility. The opera house already had Christie Boxer 4K projectors and Christie Pandoras Box media servers in place. To further elevate their AV system, they implemented Christie Terra, an SDVoE-based solution, to manage the distribution of uncompressed 4K video across the venue.

Christie Terra provided advanced capabilities, such as seamless switching, signal scaling and real-time extension of video content, all over a 10G Ethernet network. The system utilised SDVoE's multiviewer feature to enable confidence monitoring of the transmitted content, ensuring that the production team could verify what was being displayed in real time. The Terra platform transmitted video from media servers and cameras to projectors and director monitors without any visual artefacts, contributing to visually stunning and technically flawless performances. The success of this installation demonstrates how SDVoE technology can handle the complex AV requirements of a performance space, which closely aligns with the needs of large worship venues.

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Stage lighting design

ETC's outreach and training specialist, **Declan Randall**, considers the five main components of lighting design: visibility, revelation of form, composition, mood and information

SINCE THE MID-1900s, THE tungsten light bulb was the staple of theatrical lighting instruments with discharge lamps (and occasionally fluorescent and other sources) also being used. The past few years have seen a rapid development in lighting technology, with LED lighting becoming more prevalent on our stages. This has had a dramatic effect on the way we design lighting and the level of control that we now require in order to manage our lighting systems correctly.

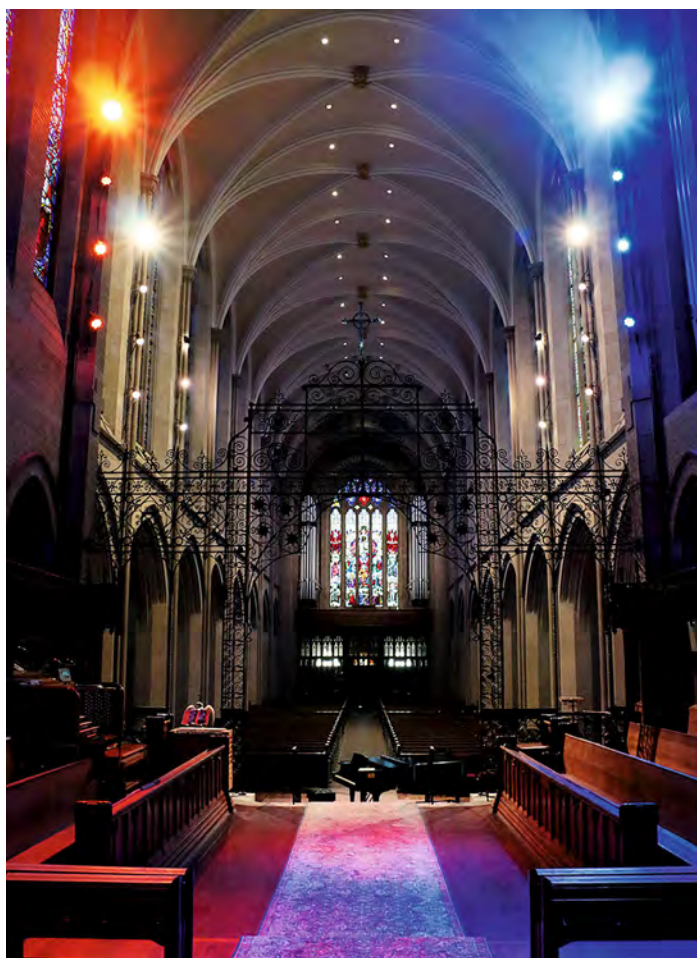
Light and the eye

Before we start to talk about stage lighting and the power light has in helping you to bring your service to life, it is important that we first take some time and consider how light behaves and how our eyes perceive light.

Light is the only thing that our eyes can see. When light strikes



Visibility is the primary objective of lighting design



ETC LEDs add colour for special occasions at Saint John's Cathedral in Colorado

an object, whether it is sunlight, moonlight or stage light, it is the light that object reflects that we are actually seeing. If an object does not reflect any light at all, then we see the object as being black.

This is why most theatres take a "black box" approach to the overall design of the stage – by starting with a black box, you are limiting the amount of stray light that will be reflected in the space. Lighting design is about the precise control of light, so having the starting point of a black stage means that you have a blank canvas onto which you can start to create your lighting looks.

Light behaves predictably and understanding how light works will help you take advantage of all its properties when you are creating your service. Light is part of the Electromagnetic Spectrum – the same spectrum that also includes X-rays, gamma rays and microwaves. Visible light occupies a very narrow portion of this spectrum. Either side of the visible light spectrum is ultraviolet light and infrared light.

Light is a form of energy and, as such, the rules of energy apply. Energy is never lost; it is only converted from one form to another. In terms of stage lighting, most of the energy wasted is in the form of heat.

Electrical energy is converted into light and heat, with traditional tungsten fixtures being quite inefficient, as only about 30% of the electrical energy is converted into usable light, the rest being converted to heat. LED fixtures are more efficient, and a higher percentage of the energy consumed is converted into light.

Another factor to keep in mind is the rule of reflection – angle of incidence equals the angle of reflection. If light strikes an object at an angle of 30°, then it will reflect at the same angle. This is important to remember, as controlling where the reflected light ends up is part of the role of the lighting designer. Lighting that is reflected towards the audience will appear brighter than light that is reflected away from them.

Objectives of lighting design

In the days of the ancient Greek amphitheatres, there was not much call for stage lighting. The sun was used as the lighting source for the plays that were being performed. The ancient Greeks understood the power of light and were able to use the sunlight to create dramatic effects. Over the years, technology has constantly improved, but the

basic objectives of lighting design have remained the same.

Visibility

This is the primary objective of lighting design. We need to be able to see what is happening onstage. Our task is to ensure that there is enough light to see what is happening clearly but also to help guide the audience's attention to the parts of the stage where the important action is taking place. Perhaps it is better to think of this in terms of "selective visibility" – you get to decide what the audience sees, when they see it and, more importantly – how they see it. When you are planning your lighting, think about the dramatic moments in your service and how you can draw the audience's attention to those moments to make sure they do not miss them.

Any light that we use onstage will lead to a certain degree of visibility but, in the context of our main objectives, being able to see the faces of the people onstage is what is important. Ensuring that there is sufficient front light is essential in achieving this objective. Of course, it is not essential that you see all the faces all of the time – there may well be moments when you want to

create different effects where people are intentionally lit to create an alternative mood.

Revelation of form

It is not enough to simply "light the stage". While visibility is important, we must ensure that we make everything on the stage look as good as it possibly can. Revelation of form basically means "introducing shadow". By introducing shadow, we create three-dimensional objects onstage. Without shadow, things can look very flat and two-dimensional. The shadows you introduce do not have to be black – by adding colour to them, you create more visual interest. Shadows can also help tell a different story. Keeping certain elements in deliberate shadow can create intrigue and mystery.

Composition

The lighting designer is responsible for creating beautiful compositions without compromising on the first two objectives. Most lighting rigs tend to be symmetrical, with evenly spaced lights often mirrored about centre. Symmetry tends to be aesthetically pleasing – by placing your lights carefully, it is easier to



Holy Redeemer Catholic Church in Michigan turned to ETC for more light, colour and control

create pleasing compositions. It is relatively easy to create striking stage pictures by lighting with bold colours and dazzling beams, but we should be careful that we do not sacrifice visibility to achieve them.

Mood

Part of the subliminal magic of lighting is setting the mood of a particular moment during a service. Simple adjustments to colour or intensity can go a long way to help you set the right mood. Warm-toned light tends to suggest happier

themes while cool tones tend to support sadder ones.

Information (scene setting)

Lighting design is about telling stories and helping the congregation understand what's happening onstage. For example, lighting can be used to tell the congregation whether something is happening in the morning or evening, either inside or outside, or in the summer or winter.

www.etcconnect.com

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ATEM 4 M/E Constellation 4K Plus

Switching across a full range of productions

Blackmagic Design doubles the size of its largest 4 M/E model with the release of the ATEM 4 M/E Constellation 4K Plus

BLACKMAGIC DESIGN HAS

extended its ATEM range of live production switchers with the introduction of two units catering for entirely different use cases. At the top end of the scale, the ATEM 4 M/E Constellation 4K Plus is an Ultra HD switcher built into a compact rack-mount design with 80 standards-converted 12G-SDI inputs and 48 customisable independent 12G-SDI outputs. At twice the size of Blackmagic's current largest 4 M/E model, it also includes 16 ATEM Advanced Chroma Keyers, four Ultra HD media players, four independent Ultra HD multiviews and two SuperSource processors.

Complete with a built-in control panel, customers can operate the switcher from the front panel during setup or for emergency use, with the rear of the switcher including connections for 3G-SDI or 12G-SDI inputs, aux outputs, balanced audio and Ethernet for control. The top 4 M/E models also include RS-422 for serial control and MADI digital audio connections. It is compatible with both Clear-Com and RTS equipment and has a built-in, 156-channel Fairlight audio mixer. The company says this makes

ATEM Mini Extreme ISO G2

it capable of more complex live sound mixing and claims an internal mixer of up to 300 input channels makes it the biggest audio mixer in a live production switcher. Each input channel features a 6-band PEQ and compressor, limiter, expander and noise gate as well as full panning. ATEM Constellation also offers a range of control panel options, with seven models of ATEM Advanced Panels available.

At the other end of the scale, Blackmagic's ATEM Mini Extreme ISO G2 is a combined switcher and control panel, which the company says is the most portable professional switcher



available. Aiming to make it easy to create professional multi-camera productions for livestreaming, it features an expanded professional-style control panel, eight standards-converted HDMI inputs, three independent HDMI outputs and a 16-way multiview for monitoring. The ATEM Mini Extreme ISO G2 has 10G Ethernet for network storage access, USB webcam, built-in DVE for picture-in-picture effects, chroma key, media player and ISO recording of all eight video inputs. It saves DaVinci

Resolve project files for one-click editing of live production and features CFexpress for ISO and program recording as well as network recording, and built-in Thunderbolt for live action replay with DaVinci Resolve. For audio, it has balanced XLR in, MADI in and a Fairlight status display with menus, as well as a headphone socket for audio monitoring.

www.blackmagicdesign.com

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Building bridges

PACKED INTO a compact 1U unit, the Bridge Live 3G-8 from AJA Video Systems is an IP video workflow bridge delivering up to eight channels of bidirectional 3G-SDI with encoding, decoding and transcoding capabilities. Doubling the 3G-SDI I/O configuration of the company's Bridge Live, the Bridge Live 3G-8 supports industry-standard codecs and formats like H.264, H.265, NDI, SRT and HLS. AJA says

NDI-SDI conversion enables users to receive NDI (full and HX) and decode to SDI or input SDI, and encode to full NDI. Users can also integrate remote NDI and non-NDI equipment/facilities via RTP/UDP/SRT and tap directly into the NDI network for a conduit to content delivery networks or other delivery mechanisms.

Multi-channel/multi-system transport supports the backhaul of multiple SDI sources, which egress



its pure IP transcode capability expands its use beyond SDI workflows, enabling conversion between any IP codec, such as NDI to/from H.264 with SRT or HLS encapsulation. Its eight bidirectional SDI ports have multi-frame rate capability to enable usage of 25/50 and 59.94/60 frame rates at the same time, while bidirectional

at the exact same time from the remote location, and a receiving Bridge Live 3G-8 ensures the SDI outputs are aligned and genlocked. This timing feature also enables production switching, multi-cam recording or other workflows where live sources are required to be timed together.

www.aja.com

Capturing USB

MAGEWELL HAS unveiled its USB Capture SDI 4K Pro plug-and-play device which enables PCs to capture SDI signals up to 4K resolution at 60fps via standard USB 3.2. The unit is the latest addition to the manufacturer's range of USB Capture products and can be used to record SDI signals up to 4096x2160 (including 3840x2160 Ultra HD) at 60fps with 4:2:2 chroma fidelity via the USB 3.2 Gen 2x2 interface. The USB Capture SDI 4K Pro is said to provide seamless video capture with minimal CPU usage and no external power source.

The unit can accept many different video formats up to 12G or frame rates up to 240fps. Along with video, the device can capture two



USB Capture SDI 4K Pro

channels of embedded audio or analogue audio via a 3.5mm line in interface. Embedded audio can also be extracted and output via the 3.5mm line out interface. The unit is FPGA-based and makes no demands on the PC's CPU, but does require a 20Gbps USB 3.2 Gen 2x2 connection for maximum

performance. It also features a driver-free setup and automatic input signal format detection for true plug-and-play operation, with support for Windows, macOS, Linux and

ChromeOS. Magewell's free USB Capture Utility software is included and permits the setting of capture-related parameters, firmware upgrades and logging.

The manufacturer has also released the Pro Convert IP to USB, a plug-and-play device which enables computers, including laptops, to capture an NDI, NDI HX or streaming

source through a USB interface with no additional power source required. It is ideal for use in conference rooms, production studios and in environments where a user's software does not natively support NDI or other IP protocols and/or the installation of additional software is not permitted.

Finally, Magewell has unveiled Q-SYS Certified plugins for the Pro Convert family of NDI encoders and decoders. The plugins integrate with the Q-SYS cloud-manageable audio, video and control platform, and are now available for download through Q-SYS Designer Asset Manager found in the Designer Software.

www.magewell.com

Marshall captures the detail

MARSHALL ELECTRONICS has introduced the CV355-27X-IP camera, designed for professional AV and live production environments. This compact full HD camera is suited for IP-based workflows.

The CV355-27X-IP features an 8.5-megapixel sensor and

captures video at resolutions up to 1920x1080 at 60fps. It supports standard HD formats, including 1080p60 and 720p60. The 27x optical zoom lens (5.5–150mm) offers a 60° angle of view, enabling detailed capture across large spaces.



The camera supports simultaneous IP (HEVC/SRT), 3G-SDI and HDMI outputs. It includes Ethernet I/O for video, control, audio and

Power over Ethernet (PoE) via a single cable. Additional features include RS-232 control and a 3.5mm audio input with passthrough.

www.marshall-usa.com



Mount up for seamless coverage

AIMING TO streamline the installation of flat-to-wall and corner dvLED videowalls, AV solutions specialist Peerless-AV has slimmed down for its Seamless Connect Universal range. Adopting a fundamentally different design process from previous models, the Seamless Connect Universal dvLED mounting system sits at the heart of the range. Compatible with most latching dvLED cabinets, it can scale to any size or configuration, including large-scale and inside/outside corner-wrapping displays, without any size limitation. With a minimal 40mm depth, it also delivers a discreet wall profile which Peerless-AV says makes it ideal for deployments that require ADA compliance.

Meanwhile, 40mm of Z-Axis (depth) adjustment and a gear mechanism offering greater control of in/out adjustments mean integrators can overcome wall irregularities over a bigger surface area, while the wall plate also includes a 13mm height adjustment to enable spacing corrections. Strength and total load capacity have also increased, with a quick-connect clamp now made of cast aluminium. The company says this means installers can skip rows of extrusion to minimise hardware and reduce installation time. A jacking screw also allows adjustment of up to 6mm for cabinet-to-cabinet alignment.

www.peerless-av.com

Bose Professional speaks the truth

CONSISTING OF the 2160BH, 2160BL, 1100BH and 250BL, the Veritas series is Bose Professional's next generation of smart mixer amplifiers that provide background/foreground music, paging and multimedia to a variety of spaces. Features



include up to 30 selectable loudspeaker EQ presets,

Bluetooth connectivity and wired stereo RCA connections,

and an intuitive front-panel OLED screen for easy setup, configuration and control. A quick-start QR code is embedded in the OLED screen which directs users to a self-guided webpage for simple installation and operation. Veritas amplifiers support up to four zones and are compatible with both distributed 70V/100V and low-impedance systems.

www.boseprofessional.com

Amplified control



THE LA1.16i from L-Acoustics is an ultra-compact 16-channel amplified controller specifically designed for the installation market. It delivers "unmatched" channel density in a 1U format and is suitable for near-field applications requiring lower sound pressure levels, such as hospitality venues, retail environments, cultural spaces and residential installations. Its high channel count can deploy large quantities of speakers – for example, up to 48 X4i compact enclosures – and it incorporates L-SMART power management

technology that intelligently matches real-time power delivery to the needs of the loudspeaker system. This is said to optimise efficiency and ensure reliable performance while reducing energy consumption compared to traditional amplifier designs.

The LA1.16i can be used in front-fill and delay systems, distributed background music systems, and L-ISA spatial audio and Ambiance active acoustic installations. For network integration, the Milan-certified controller supports Milan-AVB and AES67 audio network

protocols with seamless redundancy, alongside AES/EBU and analogue inputs. Installation-friendly features include terminal block connectors for all audio outputs, GPIOs for third-party control system integration and a 24V DC backup power input for the DSP card. It is remotely configurable, monitored using L-Acoustics' LA Network Manager software and offers integration with popular media control systems through Q-SYS plugins, Crestron modules and HTTP API.

Meanwhile, Soundvision Connect is a cloud-based platform that will expand the reach of the manufacturer's Soundvision 3D sound modelling software. This platform connects audio design in an intuitive environment and will enable

fast collaboration that produces technically precise systems that can be aligned with the needs of each project. It transforms complex sound designs into interactive 3D experiences that are said to be easy to explore and understand.

L-ISA 2025 is the latest evolution of L-Acoustics' immersive audio technology, introducing Sound Spaces to allow designers to create and mix into multiple spatial audio environments within a single project. L-ISA 2025 supports up to eight discrete Spaces, each with its own system arrangement managed from a single L-ISA Controller session and a single L-ISA Processor II.

www.l-acoustics.com

Getting amped for mobile use

OPTIMISED FOR mobile and installed applications, d&b audiotechnik has expanded its amplifier portfolio with the D25 and 25D. Boasting the same feature set as d&b's more powerful D90, D40 and 40D amplifiers, both deliver full Milan networking to provide more streamlined configuration and enhanced interoperability for users, as well as driving wider industry adoption. Meanwhile, support for the full suite of d&b software solutions delivers features like ArrayCalc, ArrayProcessing, NoizCalc, R1 remote control and d&b HeadroomCalc.

Designed for smaller applications, the units provide the optimal output voltage for mid-sized sound reinforcement requirements and provide a fully integrated d&b system when combined with d&b loudspeakers. They both feature a 4.3-inch colour touchscreen for intuitive device configuration and

real-time status monitoring, are housed in a compact 2U form factor and support up to 16 input channels, including eight Milan input channels, four analogue inputs and four AES3 channels with corresponding link outputs. The installation-focused 25D version also includes dedicated Euroblock connectors for GPIO and a fault contact, providing eight GPI and four GPO pins for additional control functionality.

In other news, the manufacturer has also released Create.Control standalone software designed to enhance the creative use of the d&b Soundscape ecosystem. Available as a free download, Create.Control introduces a dedicated interface for object-based mixing, supporting offline pre-production and live show environments.

Create.Control enables sound designers, engineers and creatives to plan and manage Soundscape



projects independently of the main R1 control software, allowing systems engineers to maintain control of core configurations while allowing visiting engineers to access and manipulate creative content.

The software removes the need to share system interfaces, simplifying collaboration by offering compatibility with personal devices and software setups. Features include project creation, sound object management, animation, snapshots, transitions and a configurable patch panel.

Projects can be adapted for different venues, supporting touring and fixed installations across churches and other worship venues.

Create.Control integrates with the existing d&b workflow, complementing tools such as ArrayCalc, En-Space and En-Space, and aligning with recent developments including scalable I/O options for the DS100 and DS100M, and redundancy packages.

www.dbaudio.com

LD Systems partners with Powersoft

WITH THE integration of its amplification and processing technology into selected LD Systems ADA amplifiers, the Adam Hall Group has announced a strategic partnership with Italian sound specialist Powersoft. The partnership starts with the introduction of Powersoft's Class-D topology, advanced DSP and network control into the ADA series of

4-channel DSP touring amplifiers with Dante integration.

Designed for professional touring and installation applications, the LD Systems ADA series comprises the ADA 8 K4 and ADA 12 K4 models. Adam Hall says the leveraging of Powersoft's advanced technologies enables the ADA series to offer adaptive voltage management with

ADA 8 K4

Powersoft's Power Factor Correction for universal mains operation, as well as low idle consumption below 15W and a built-in library of linear-phase FIR presets. Dante and AES67 networking, together with Wi-Fi access through Powersoft's ArmoniaPlus,

also allow real-time health monitoring, zoning and grouping from any device, while a Speaker Lock auto-setup routine simplifies configuration.

www.ld-systems.com
www.powersoft.com



RØDE goes on ear

DESIGNED FOR content creators and audiophiles, RØDE's NTH-50 professional on-ear headphones feature a custom driver array described by the company as having

a contoured headband and ergonomic earcup structure to minimise wearing fatigue, has dual-sided cable attachment with locking connectors and a 1.7m coiled cable with a ¼-inch adaptor.

The manufacturer has also announced a firmware update for its Wireless Micro. Available through the RØDE Capture app, Direct Connect enables Wireless Micro transmitters to pair directly with iPhones via Bluetooth, eliminating the need for any additional hardware or accessories. The update introduces several enhancements within the RØDE Capture companion app. A noise reduction feature helps deliver even cleaner audio by minimising background noise – this setting can be toggled independently for each transmitter, giving users precise control over their sound. Creators now have the option to record in merged or split modes. Finally, a new output gain control lets users easily adjust recording levels directly within the app.

www.rodex.com



NTH-50

a "revolutionary acoustic design with an innovative resonant chamber". RØDE's first-ever on-ear headphones use a custom 40mm driver that reportedly results in a more natural sound signature than other on-ear headphones, as well as offering ambient noise attenuation of 21dBA. With an aluminium housing and lightweight design, the NTH-50 sports

Licence updates from DirectOut



A RAV.IO and RAV.SRC.IO 256 channel-mode upgrade and an NMOS Out-of-Band (NMOS OOB) network functionality upgrade have been announced by DirectOut. The 256 channel-mode for the RAV.(SRC.)IO will double the capacity of the network audio module. The module-bound licence upgrade means that licences can be installed on multiple host devices and will automatically activate only when the licenced RAV.SRC.IO or RAV.IO module is inserted. This is said to increase the flexibility and performance of the RAVENNA stack, being able to max out physical limits, while saving budget for increasing demands. The manufacturer's HD SRC is also available on board the

RAV.SRC.IO, maintaining signal integrity with just 1ms of latency.

The second addition to the DirectOut licences is the NMOS OOB service. Previously, RAV.IO and RAV.SRC.IO modules have supported NMOS standards IS-04 and IS-05 for device discovery, registration and stream connection. By adding the NMOS OOB licence to the PRODIGY or MAVEN.A, additional access to the NMOS stack via the management network interface of the host device is granted. The system designer can integrate node discovery and stream configuration in a separate control network, independent of the media network.

www.directout.eu

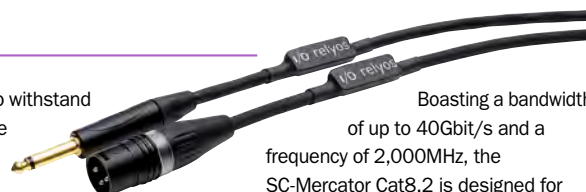
Sommer Cable gets RFID-ready

SOMMER CABLE'S connection cables are now RFID-ready with integrated transponders from relyos, the manufacturer's partner company. The solution has been designed to increase efficiency in goods and inventory management. The relyos handheld scanner or GATE counts every incoming or outgoing product in a logistics line. Sommer Cable's connection cables are now available pre-made with a built-in RFID relyos transponder and can be tracked using the relyos system. This aims to enable users to keep track of their cables. The RFID transponders are attached at the cable end. For XLR cables, these

are attached to the side of the male plug to ensure that the transponders do not interfere with installations and normal stage applications. The transponder is firmly and securely fixed by a shrink tube that is covered with the relyos logo. These chips are ideally suited for heavy use in everyday event applications, featuring a lifespan of about 30 million read operations.

Designed to deliver protection from external factors, the HICON PRO+ XLR connectors are optimally shielded to ensure signal losses are reduced to a minimum. Together with the SC-SOURCE MKII HIGHFLEX microphone cable, which is specially

designed to withstand interference from electrical sources, the company says it offers a perfectly protected connection cable. A wire cross-section of 2x0.25mm² made of 0.05mm OFC copper strands is reel-friendly and provides high bending cycles, while its aluminised fleece plus copper spiral shielding reportedly ensure a 100% optical coverage. The fleece is also vaporised on both sides with a conductive aluminium layer to ensure the cable remains noise- and crackle-free.



Boasting a bandwidth of up to 40Gbit/s and a frequency of 2,000MHz, the SC-Mercator Cat8.2 is designed for demanding high-speed networks. With a halogen-free, LSZH jacket, the company says the Cat8.2 cable meets the requirements of CPR fire protection class B2ca, and complies with the IEC 60332-1-2 and IEC 60754-1/2 standards. It features double shielding consisting of individually shielded wire pairs and an overall copper braiding, and is compatible with GG45 and AR45 connectors.

www.sommercable.com



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IP CONNECTIVITY



Curtain up on V20 software

DIGICO'S V20 software for the Quantum and SD-Range consoles introduces worksurface integration for Fourier Audio and Sound Devices, the addition of a Mustard Source Expander and an optional theatre-software extension for the Quantum2²⁵.

The introduction of direct Fourier Audio integration for all Quantum console worksurfaces means users can connect their desk to the Fourier transform.engine's control network to synchronise session files and snapshots, as well as see and control plugins on their console touchscreen. All visual processing is done within the transform.engine, taking no processing power from the console. V20 also adds further support for Sound Devices' transmitters. The



company says the Astral External control device means macros

can be triggered directly from the transmitter when using the

A20-Nexus and A20-SuperNexus receivers. Potential use cases include simple push-to-talk, unmuting a separate feed to a director in a broadcast scenario or allowing a vocalist to turn on or off a particular effects send for their microphone during a performance.

Meanwhile, the Mustard Source Expander (MSE) is a dynamics option for Mustard processing strips on Quantum consoles that reduces the level of a signal by a given amount when it is under a threshold. By reducing the level when a singer stops singing, the MSE can minimise the chance of feedback and reduce the level of stage noise spilling onto open mics.

www.digico.biz

Omni keypads combine simplicity with customisation

DESIGNED FOR integration into the BSS Soundweb Omni signal processing and AMX Muse automation and control environments, BSS has created the Omni keypads. Featuring dynamic programmable LCD buttons, the Omni keypads support full-colour images and multiple states. In addition to promoting customisation, the keypads aesthetically blend into

I/O expanders or AMX Muse automation controllers, and are compatible with AMX NetLinX or third-party control platforms.

Incorporating PoE connections to simplify cabling, the panels are currently finished in black or white. Available in tabletop and wall-mount configurations, the three tabletop models come in 6-button, 6-button with rotary control and 8-button with rotary



modern interior designs, without sacrificing functionality.

Enabled by Harman's AVX Suite, the keypads can be configured and managed through the unified software platform. By adopting Harman's HControl protocol, they communicate natively with BSS Omni DSP processors and

control variations. Wall-mount models are compatible with worldwide variations of single-gang electrical boxes and include 6- or 8-button layouts with optional rotary control or a rotary-only configuration.

pro.harman.com

Going solo



CATERING TO solo creators, Sennheiser has launched a lightweight and ultra-portable 1-channel version of its Profile Wireless 2.4GHz all-in-one microphone solution. Sennheiser says the 1-channel version covers typical usage scenarios of solo creators, while allowing for later expansion of the system by including the same 2-channel receiver as the Profile Wireless 2-channel system.

With an operating time of up to seven hours and 16GB of memory for up to 30 hours of internal recording, the mic requires no app for setup and can be used on cameras, smartphones and computers, and it can be combined with a lavalier microphone or used as a wireless boom. The Profile Wireless 1-channel mic system comes in a pouch that includes the clip-on

microphone with mini windshield and magnetic mount, a 2-channel receiver, two USB cables, USB-C and Lightning adapters, a camera cable and a shoe mount adapter.

Sennheiser says it has also addressed user requests with a 32-bit float firmware update for all Profile Wireless systems. For 32-bit float recording, Profile Wireless combines the audio signals of the two A/D converters inside the Profile Wireless mics to create a single 32-bit float audio stream. Creators who prefer 24-bit recording still have the option to deactivate 32-bit float recording and turn on the Safety Channel Mode. This will output a -6dB version of the audio in addition to the original sound level to help protect against clipping.

www.sennheiser.com

Neumann brings 3D audio to any setup with RIME

NEUMANN HAS launched its RIME (Reference Immersive Monitoring Environment) software, described as an integrated solution for monitoring immersive audio on headphones. RIME enables mix engineers to monitor immersive formats like Dolby Atmos in reference quality, providing an alternative when a multichannel

alignment. The three-dimensional soundfield was captured using the manufacturer's KU 100 binaural head microphone connected to its MT 48 audio interface. This setup is said to ensure pristine sound quality throughout the entire signal chain.

Neumann states that unlike competing solutions that confound



loudspeaker setup is unavailable or when working on the go.

RIME is a plugin for all major DAWs on Mac and PC (VST3/AU/AAX) and is typically used on the output or monitoring bus. It converts multichannel formats to binaural audio, retaining surround and height channel information.

RIME captures a real purpose-built studio room using reference-quality Neumann equipment throughout. Immersive setups of Neumann KH Line loudspeakers and subwoofers were installed by acoustics experts and fine-tuned using MA 1 automatic monitor

the user with a multitude of options and different sounding virtual spaces. RIME is easy to use and reproduces one reference room as a single source of truth. For added realism, RIME supports OSC-compatible head tracker devices to create a listening experience that responds to the user's head movements. Moreover, RIME can also be used for stereo playback to enjoy a loudspeaker-like listening experience without the in-head localisation typically associated with headphones.

www.neumann.com



At the CORE of music

DPA MICROPHONES has upgraded its DPA 4099 instrument microphone with the 4099 CORE+, which claims to deliver a wider dynamic range, enhanced sonic transparency and advanced distortion-reduction technology. Aiming to retain the signature character of the 4099, the 4099 CORE+ has 10dB of added dynamic range and a higher clipping point than its predecessor. It also incorporates DPA's patent-pending CORE+ technology, which the company says eliminates the non-linearities typically generated by the membrane and electronic components of a microphone.

In addition to the CORE+ upgrade, the company has also redesigned the 4099's mounting system to work across a broader range of instruments. DPA's Gooseneck Mount (G-MOUNT) integrates a 2-step locking mechanism that allows for mic placement with one hand and improves vibration isolation and stability, and is backwards compatible with many existing DPA clips. Select clips, such as those for cello, piano and microphone stands, have also been refined, while the introduction of DPA's XLR-MOUNT enables users to mount 19mm pencil mics or XLR adapters.

www.dpamicrophones.com

Alcons provides power and precision

ALCONS AUDIO has released two loudspeaker models aimed at different segments of the professional audio market. The GR20 is a compact point source system designed for high SPL applications, while the MR5 is a reference monitor intended for critical listening.

Created for high-output portable or installed applications, the GR20 is a 2-way, full-range system featuring Alcons' proprietary RBN602 6-inch pro-ribbon HF driver, paired with two 10-inch neodymium woofers that incorporate the company's Active Coil technology. The driver arrangement is vertically symmetrical to support consistent projection and phase coherency. The system offers a peak



GR20

SPL of up to 135dB and a frequency response of 54Hz–20kHz (± 3 dB).

The loudspeaker's rotatable waveguide supports either 80° x 50° or 50° x 80° dispersion, enabling flexible placement in both vertical and horizontal orientations. Designed for use with Alcons' ALC amplified loudspeaker controllers, the GR20 benefits from integrated VHIR processing and Signal Integrity Sensing, which compensates for cable and connector losses and maintains system damping.

The MR5, by contrast, is a compact reference monitor for studio and postproduction use, built around the RBN202 2-inch pro-ribbon HF driver and a single 5-inch woofer. It

is intended for applications requiring accurate, low-distortion monitoring over extended listening periods. The system's frequency response is rated at 45Hz–20kHz (± 3 dB) and it offers a nominal peak SPL of 117dB.

The MR5's 120° x 40° dispersion is achieved through a patented Hemphorn waveguide, providing wide imaging suitable for immersive and multichannel audio systems. A ScoopVent design improves low-frequency extension and transient behaviour. Like the GR20, the MR5 is designed to be driven by Alcons' ALC controllers, which supply DSP, amplification and centralised power.

www.alconsaudio.com

NEXO builds on Alpha Series

THE ALPHA+ is a hybrid source sound reinforcement system that draws on the original Alpha Series while applying new technologies to optimise performance and flexibility. The three-box system consists of the M210 main, B218 bass and L20 sub-bass modules. The M210 is a horn-loaded double 10-inch cabinet with four 3-inch HF compression drivers; the B218 is a horn-loaded double 18-inch module; and the L20 is a band-pass single 20-inch unit taken from the existing P+ Series range. With a comprehensive package of hardware available, stacked and installed systems of various sizes can be configured with the main and bass modules which would typically be used in a 1:1 ratio.

The continuously varying horizontal directivity from 60° at the top of the M210 to 120° at the bottom can be modified to 90°/120° or 60°/60° using flanges, and the waveguide block can be “unlocked” and its articulation changed from narrow vertical coverage (0°/–20°) to wide/standard (+20°/–20°).

The NXAMP4X4Mk2 provides the ideal amplification and processing platform – a basic stacked system of one M210, one B218 and two L20 left and right requires a single NXAMP4X4Mk2 for each side, with two channels for the main, one for the bass and one for both subs.

www.nexo-sa.com



RCF amps it up

RCF'S KPS Series is a line of high-density, multichannel Class-D amplifiers designed for professional fixed installations. Boasting flexible power allocation, advanced DSP and full matrix routing in an installation-ready format, they are available in 4- and 8-channel configurations with continuous output ratings of 160W or 800W per channel. KPS amplifiers support both low-impedance (2.7Ω, 4Ω and 8Ω) and high-impedance

switch. Meanwhile, connectivity options include balanced and unbalanced analogue, S/PDIF digital I/O and optional Dante integration. KPS amplifiers are also fully compatible with automation systems such as Q-SYS, AMX and Crestron.

Featuring the manufacturer's Precision Transducers, RCF has also unveiled its X Series range of IP55-rated speakers featuring



(70V/100V) systems and feature intelligent asymmetric power distribution across channels without the need to bridge. Onboard DSP provides full signal processing and loudspeaker management, with a library of RCF speaker presets for fast configuration. Control and monitoring are managed via the company's RDSpace software and each unit includes integrated Wi-Fi for direct access without a network

the X 08, X 28L and X 40, and introduced the XPS 4K amplifier, a 4-channel, 4x1,000W continuous power amplifier with an optional Dante-enabled version. The XPS 4K shares the same specifications as the XPS 16K Series.

The manufacturer has also announced that BIM files are now available for HDL and HL speakers.

www.rcf.it

POLAR MK2



All packaged up

DESIGNED AS a scalable package for large venues and open-air events, the Linear 5 MK2 High Power System from Germany's HK Audio combines key components from the company's Linear 5 MK2 series. At the heart of the system is the Linear 5 MK2 308 LTA mid/high unit, a horn-loaded, long-throw active speaker designed for wide dispersion and deep coverage. When combined in clusters or stacks, users can benefit from preset-based configuration and horizontal coverage.

HK Audio has paired this with the Linear 5 MK2 118 Sub HPA, a subwoofer with an 18-inch woofer and bass-reflex design. Fully networked with HK Audio's free DSP control software, the package allows full remote management, user-created presets, component grouping and firmware updates, while the system's DSP Out functionality allows non-networked loudspeakers to be integrated and managed within the same setup. The system also features cardioid filter presets for directional bass control and upcoming Milan audio networking compatibility.

Marking an evolution of its POLAR column speaker system, the POLAR MK2 series is a portable and compact column PA system. Available in two versions, the POLAR 10 MK2 caters up to around 200 people as a stereo setup, while the POLAR 12 MK2 can cater to up to 250 people. Meanwhile, both can be expanded with additional subwoofers from HK Audio's SONAR series.

Both models' low-resonance column contains six 3-inch neodymium midrange drivers and a 1-inch tweeter with a constant directivity horn. It achieves a 120° dispersion, and its subwoofer delivers dry, precise bass without any artificial filters. Available in black or white, it sports ergonomic handles and an optional rolling board for mobile use. An integrated mixer offers two mic/line channels with gain control, a high-impedance instrument input (Hi-Z) and an aux/Bluetooth channel, as well as switchable phantom power to enable the use of condenser microphones. It features three selectable sound modes, while five user presets allow users to customise their sound to any room and application. The POLAR MK2 series also boasts a master EQ, system delay and limiter and can also be paired wirelessly, without the need for additional cables or mixing consoles. Finally, an integrated USB-C charging port keeps smartphones, tablets or wireless microphone systems powered during long events.

In brief, the manufacturer has released DSP Control version 4.1. The focus is on the new Milan integration for the Linear 5 MK2 series, which further expands HK Audio's Milan-certified loudspeaker portfolio. Linear 5 MK2 loudspeakers will now indicate Milan operation by inverting the preset LED. In addition, the fan control has been further developed for optimised, quieter operation.

www.hkaudio.com

PUTTING THE AV INTO AVANTIS



Avantis is a versatile solution for AV and integration, offering the power, portability, and flexibility required for venues, conference rooms, and dynamic multimedia environments.

Shure/Sennheiser RF integration, next-generation RTA, Automatic Mic Mixing, compatibility with the Everything I/O ecosystem, Dante/AES67 options, and remote-control capabilities make Avantis a powerful “all-in-one” solution for corporate AV, owner-operators, and smaller venues.

avantis



ALLEN & HEATH
www.allen-heath.com/avantis

Power to the max

THE MP (Mini Power) Series of compact line arrays from HH Audio has been created for small-scale



Prince Series

touring and fixed installation sound. Designed to deliver high SPLs in a portable and simple format, the series consists of the MP42 quad 5-inch 2-way passive line array loudspeaker and the MP2P double 12-inch passive subwoofer. The MP42 and MP2P pair together seamlessly via either the

integrated pin-based rigging system or pole-mount socket.

The Prince Series consists of a selection of line array, point source and subwoofer enclosures. The PS5

5-inch, PS6 6.5-inch, PS8 8-inch, PS10 10-inch, PS12 12-inch and PS15 15-inch single passive 2-way point source speakers combine with the LA10D double 10-inch and LA8D double 8-inch units. In terms of subwoofers, the range consists of the S18-H single 18-inch and

S15-H single 15-inch passive line array subwoofers, along with the S28 double 18-inch, S15 single 15-inch and S18 single 18-inch subwoofers. The series is completed by the M15 single 15-inch passive stage monitor.

The Royal Series comprises passive line array enclosures (L2-Array, L3-Array and L4-Array), passive subwoofer enclosures (GSE, GSE-H, GSS and GSD), passive 2-way point source loudspeakers (H8, H10, H12 and H15), constant curvature arrays (F1-Array and F2-Array), passive array point source loudspeakers (P2-Array and P3-Array) and a passive 2-way stage monitor (UM1).

Finally, the compact MZ140DX has been added to the manufacturer's MZ Series of multi-zone amplifiers and can be deployed for smaller installations or expanding larger systems.

www.hhaudio.com

Double up on Dragons and Dolomites

CAPABLE OF being used as a point source speaker or as part of a line array, the Dragon-KX12 MKI is described by K-array as a "radical reinterpretation of a coaxial point source speaker". Featuring a 12-inch woofer and a 1.7-inch compression

10-inch subwoofers and two 10-inch passive radiators. Each is crafted from stainless steel and wrapped in acoustically transparent fabric and is designed to adapt to a range of applications including clubbing, live events and hospitality. Each unit boasts a solid iron base for stability, removable handles and protective

integration reportedly makes K-array the first professional audio brand to natively embed the NDI protocol directly into its amplifiers. It marks a significant advancement in AVoIP integration, as no external gateways, licences or additional hardware are required.

www.k-array.com



Dragon-KX12 MKI

driver, the MKI version has a compact, stainless-steel chassis and 40° x 60° (VxH) coverage that can be rotated to optimise sound dispersion. When used in an array, the speaker leverages EBS (Electronic Beam Steering) controlled emission for more precise, electronically adjustable coverage. It has a max SPL of 133dB (peak) and is 800W power rated.

Meanwhile, the Dolomite-KRD202P is a portable line array system composed of four modular KDL102 units measuring 1m, with each module housing 16 2-inch woofers, two

caps for outdoor-rated performance. The complete bundle comprises four KD2L102P modules and a KA104LIVE amplifier.

The manufacturer has also announced that through a software update, it has adopted the Network Device Interface (NDI) protocol across its full line of Kommander amplifiers. The



Dolomite-KRD202P

EVIVA elevates power

ELECTRO-VOICE HAS designed the EVIVA family of portable powered loudspeakers for musicians, houses of worship, small venues and startup production and rental companies. The series comprises the 12-inch EVIVA 12P and 15-inch EVIVA 15P 2-way loudspeakers, along with the EVIVA 18SP 18-inch subwoofer. The 2-way models come with a custom-designed, high-energy neodymium high-frequency compression driver, as well as Electro-Voice's patented SSTs (Signal Synchronized Transducers).



Both the EVIVA 12P and EVIVA 15P offer a 90° x 60° (HxV) coverage pattern. The 12P has a frequency range of 50Hz–20kHz (–10dB) and a maximum SPL of 125dB, while the 15P has a wider frequency range of 45Hz–20kHz (–10dB) and has a higher maximum SPL of 126dB. Supplementing the low frequencies, the 18SP takes the frequency response down to 38–200Hz (–10dB) and has a maximum SPL of 132dB.

All units feature a 1,000W amplifier with a 2-channel analogue input section. Control comes with gain knobs for level adjustment and switches for mode changes between Music and Live. With the 12P and 15P, there are also switches for high pass changes between No Sub and With Sub EVIVA 18SP, while with the 18SP there are switches for low pass between 100Hz 12P/15P and 150Hz, and polarity between Normal and Reverse. Auto-switching universal 100–240V mains voltage input is also included.

www.electrovoice.com

F-BOXing clever

SUITABLE FOR both interior and exterior use, the F-BOX Speaker Series from TOA Electronics Europe is a range of three speakers for commercial and safety-critical applications. Available in black or white, the F-BOX sports a flat, minimalist design and a clean, architectural enclosure that TOA says is designed to blend into modern environments. The product line includes a 3.5-inch full-range model, 5- and 8-inch 2-way models,

and an 8-inch subwoofer for extended low-frequency response. All models are designed for surface mounting on walls or ceilings, and include a temporary docking mechanism, allowing installers to pre-position the speaker before wiring. An integrated angle adjustment system ensures precise sound alignment. Each speaker is also compatible with both low-impedance (8Ω) and high-impedance (100V/70V) systems,



making the F-BOX Series ideal for scalable and hybrid installations. For outdoor or safety-critical applications, a weather-protected IP65-rated version is available,

certified according to EN 54-24, allowing for use in voice evacuation systems.

www.toa.eu

Riedel thinks smart with StageLink



The StageLink family

RIEDEL HAS announced the launch of its StageLink family of smart edge devices for seamless network streaming. The networked I/O boxes have been designed for broadcast and live production environments and will streamline decentralised signal distribution over generic IP networks, eliminating the complexities of traditional cabling and configuration.

The StageLink product line enables media professionals to capture and distribute signals across their networks, ensuring a smooth, reliable and cost-effective transition to IP-based workflows. By leveraging standard network cables instead of

specialised infrastructure, StageLink devices create a scalable system that integrates microphones, intercom, GPIO devices and other audio-enabled equipment.

The lineup consists of six devices, each tailored to specific workflow needs. The NSA-003A (Dual Partyline) enables integration of third-party legacy 2-wire intercom systems into Riedel's Artist and Bolero ecosystems. The NSA-004A (Quad In) and NSA-005A (Quad Out) offer four universal input and output ports respectively, supporting both analogue and digital audio connections. Designed as an all-in-one interface

for media workplaces, the NSA-006A (Workplace) features mic preamps, headphone outputs and stereo speaker connectivity. The NSA-007A (Dual In/Out) serves as a broadcast-grade 2-in/2-out I/O box that also functions as a classic analogue or digital 4-wire device for Artist and Bolero intercom systems. Finally, the NSA-010C (GPIO) is a network-based GPIO interface that operates in either integrated Artist/Bolero mode or standalone mode, enabling third-party connections via NMOS IS-07.

Meanwhile, the German manufacturer has also unveiled a compact desktop intercom panel to complement its 1200 Series SmartPanels. With a purpose-built form factor, the DSP-1216HL offers a space-saving, multifunctional interface for professionals in broadcast and live event production, bringing the power and flexibility of the software-defined SmartPanel ecosystem to the desktop.

Much like a smartphone, a SmartPanel allows users to adapt its functionality to their workflows by leveraging various apps instead of

multiple single-purpose panels. This approach reduces hardware costs and complexity while futureproofing investments, as new features can be added via software updates. At launch, the DSP-1216HL will support all three 1200 Series SmartPanel Apps: the Intercom App for real-time communication, the Control Panel App for third-party integration and the Audio Monitoring App for high-performance audio monitoring.

The DSP-1216HL features 16 hybrid lever keys for intuitive Talk-Mute and Talk-Listen workflows, along with high-resolution, full-colour multitouch displays and customisable LED rings for clear signalisation. Designed for seamless integration with the Riedel Artist intercom ecosystem, the DSP-1216HL comes with extensive connectivity options and a focus on open IP standards. It can be connected to the Artist-1024 via AES67 (SMPTE ST 2110-30) or to the Artist-32/64/128 via AES3 and feels at home in modern production networks.

www.riedel.net

Shure expands wireless scalability

SHURE IS expanding the scalability and flexibility of its wireless systems with the ANX4 scalable wireless receiver, a channel expansion and new transmission mode for Axient Digital PSM and ULX-D wide-tuning solutions.

The ANX4 can be operated in either Axient Digital or ULX-D mode, supporting all available transmitter options in those platforms. It enhances channel scalability, offering up to 16 channels of Axient Digital or 24 channels of ULX-D in a single device via channel licences.



Channel expansion capability and Axient Digital Standard Transmission Mode will be available for Axient Digital PSM as a firmware update through ShureCloud, with channel expansion licenses available for purchase through

ADTQ and ADTD transmitters to send wireless audio to Axient Digital microphone receivers, extending high-power, long-distance audio transmission capabilities.

The ULX-D Wide Tuning Wireless components include transmitters and receivers that ship with expanded frequency bands (regionally dependent) allowing ULX-D components to be used in more locations across the country. The wide-tuning ULX-D components are compatible with the ANX4.

authorised dealers or on Shure's website. Channel scalability adds up to 12 stereo audio channels for the ADTQ quad transmitter and six for the ADTD dual transmitter. Axient Digital Standard Transmission Mode enables

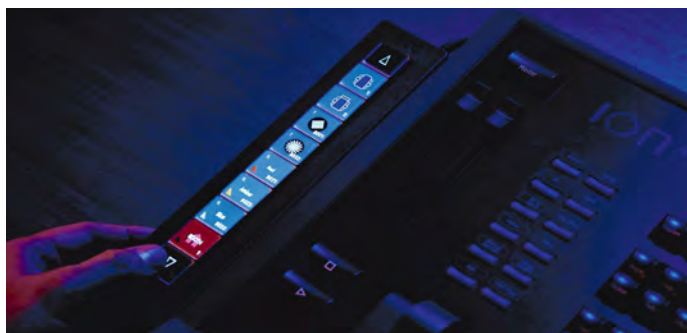
www.shure.com

ETC adds to Eos lineup

THE TK 10 Button Accessory is the latest addition to ETC's Eos programming accessory lineup. It provides users with the full power of Apex Target Keys in a portable, mountable format. Compatible with all Eos Family devices running Eos v3.2.11 or later, the TK 10 allows users to tailor their setup "like never before". With its rugged design and 3D-printable clip-on accessories, the TK 10 can be tucked into a carry-on bag or it can sit beside a console. Featuring 10 built-in display buttons powered and connected via a single USB-C cable, the TK 10 reportedly delivers the versatility, durability and compact design that programmers, designers and installations demand. Users can add labels, images and navigational elements to create a platform that enhances any workflow. It is available in a portable form factor as well as a 1U rack-mount version, suitable for comms racks or users who need to activate Eos functions without navigating the full user interface.

Meanwhile, Eos software v3.2.11 has also been released. In addition to support for the TK 10 Button Accessory, improvements have been made to Eos Magic Sheets, object parameter and category selections have been updated and Magic Sheet objects can now utilise the Notes and Scenes fields. Improvements have also been applied to multi-console synchronisation and stability.

Capable of 12-, 24- or 48 channels of switched power, the Foundry Switch Panel from ETC is a power control unit designed specifically for the 230V market and designed around EU design protocols, wiring standards and methodology. ETC says the Foundry Switch Panel is built to handle the variety of ways modern systems use electricity, while preparing venues for the future. It intelligently reduces in-rush with phased switch-ons, with optional per-circuit power and current monitoring and reporting, and features fanless construction for silent, reliable operation. The Foundry Switch Panel DMX model features configuration



TK 10

through NFC using ETC's Set Light app, or via RDM; the mid-tier Connect model adds a processor for sACN support, web UI and more detailed configuration options; and the Report model adds per-circuit current monitoring to report on current, real and apparent power, as well as counting usage in kWh. In every model, circuits are protected with RCD breakers, with a choice of RCD per four or RCBO per channel.

Finally, the manufacturer has also released Foundation 1.63 which includes the option to create presets with a series of steps. Programming the user interface is said to be similar to programming cues on

some of ETC's consoles, including OSC triggers. Customers can now loop presets, run a preset in the background while performing other moves and import an advanced preset into a cue, creating a cue with a subset of cues. Additional features have been added to make Foundation and QuickTouch Preset controllers compatible with Prodigy Balance systems, including lineset position reporting, check rope lock status, instant error reporting and the ability to modify lineset light properties and lock and unlock linesets individually or all at once.

www.etcconnect.com

LightShark unveils the X-Series

SPAIN'S LIGHTSHARK has unveiled the X-Series, a line of DMX/RDM control devices designed for demanding lighting applications. The NODE 6X and NODE 12X offer six and 12 DMX universes respectively, with full support for RDM E1.20, ArtNet and sACN, and allow users to adjust the DMX refresh rate from 15–44Hz. Each port can be independently configured as an input or output, enabling bidirectional conversion between Ethernet and DMX, as well as flexible routing of DMX512 signals to ArtNet or sACN.

Both units offer Power over Ethernet (PoE, 802.3af, modes



NODE 6X

A and B) and a direct power input of 100–277 VAC, 50/60Hz via a TrueOne connector. For long-distance applications, the NODE 6X and 12X feature fibre optic connectivity via LC duplex connectors. The local user interface includes an LCD screen, rotary encoder and escape button,

with lock option, and can also be managed remotely via an integrated web server. Advanced network configuration is supported, including customisable IP, subnet mask and gateway, with 10/100/1000 Base-TX and DHCP compatibility. Key features include internal DMX recorder with

capacity for five scenes; trigger port with five GPI inputs for scene/preset activation; and HTP, LTP, Backup and Switch merge modes.

LightShark has also introduced an RDM X splitter, as well as the RDM4, a compact 4-port DMX splitter built in the same chassis as the popular NODE 1, 2 and 4 devices. Finally, the NODE 1, 2 and 4 models have been updated with a reinforced chassis, clamp mount, a Kensington Lock, a revamped web configuration server and support for custom subnet masks.

www.lightshark.es

Nodes in a new shape



MA LIGHTING has announced that its grandMA3 Nodes portfolio is now presented in a new shape. The former portfolio with a variety of product options has been reduced to just five remaining models that fulfil the needs of all different applications. The technical specifications stay exactly the same.

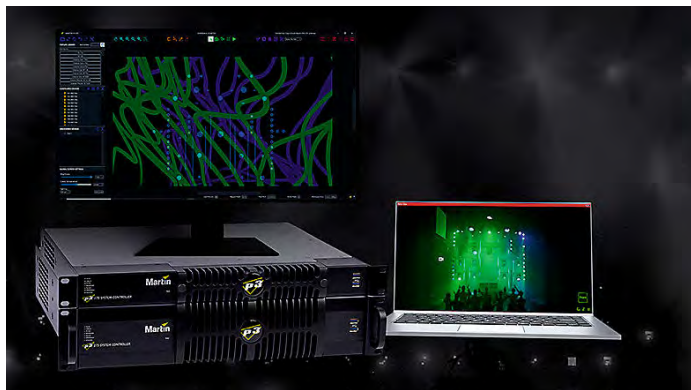
The grandMA3 2Port Node, grandMA3 4Port Node and grandMA3 8Port Node are coming directly with PoE and onPC parameters, while the grandMA3

I/O Node also includes the PoE option by default. Finally, the grandMA3 4Port Node DIN-Rail remains as the "workhorse" in all fixed installations, particularly if users need a direct PCB connection or an easy-to-mount DIN-Rail housing.

The onPC 2Port Node 2k, onPC 4Port Node 4k, onPC 8Port Node 4k and I/O Node, all including PoE, along with the 4Port Node DIN-Rail have been reduced.

www.malighting.com

Update delivers real-time integration



P3 System Controller v6.2.0

DESIGNED TO integrate seamlessly into the Martin P3 ecosystem, Martin has introduced a third-party 3D Visualizer Protocol into its P3 System Controller Software with its v6.2.0 update. Allowing lighting designers, programmers

and systems technicians to integrate third-party 3D visualisation software with the Martin P3 System Controller, the P3 Visualizer Protocol enables real-time sharing of fixture data to replicate real-world fixtures, whether driven by a lighting

console, video-mapped through the P3 System Controller or both simultaneously. With connectivity over a single cable, the software's plug-and-play functionality simplifies setup and delivers immediate integration with compatible visualisation tools. Martin says that visualisation software provider Capture has already incorporated the open protocol into its Capture 2025 software.

The free update extends compatibility to the entire range of Martin's P3 System Controllers, including the P3-050, P3-150, P3-175, P3-275 and P3-300. It is also available as free P3-PC System Controller software to provide access without any additional hardware investment.

www.martin.com

Four on the floor

ITALIAN LIGHTING specialist Claypaky has introduced a quartet of lighting fixtures designed to meet the needs of a range of environments. The Tambora Stormy Linear is a hybrid lighting bar that delivers bursts of graphical strobes with 25 central RGBW LEDs and two strobe lines with 125 WW/CW LEDs, each divided into 25 controllable segments. Meanwhile, the Tambora Glare is another hybrid bar with two strobe lines that each feature 25 segments of WW/CW LEDs. Designed to create electrifying rhythmic pulses for high-energy shows, it has 10 50W RGBA LEDs

that provide rich, warm hues with precise colour mixing, while red-shift technology mimics tungsten glow for dimming effects.

Meanwhile, Claypaky describes the Volero Twins as redefining batten-style lighting by merging the power of an effects light with the versatility of a moving head. It features solid beams, linear zoom, strobe effects



Actoris Fresnel

and seamless modularity, and is equipped with dual lighting engines, endless PAN rotation and six layers of effects.

High-output RGBW LEDs, large lenses and 20 cold white strobe segments create high-energy, high-definition effects. Finally, the Actoris Fresnel is the newest addition to Claypaky's Multispectral family. It features a 6-colour RGBAL and Royal

Blue LED engine, and a CRI of up to 97.

www.claypaky.com

Punching above its weight

ASTERA HAD added to its Quik series with the QuikPunch, which delivers high-quality light via its Fresnel lens. The luminaire features a 13–60° zoom with no stray light and 8,000 lux at 3m. It is optimised for fast setup and practical operation, and comes complete with a battery-driven PrepBox and ChargingPlate. Like its predecessor the QuikSpot, the QuikPunch adds OutputGain for deeper colour saturates.

Consuming just 75W and producing an output equivalent to a 200W LED PAR for stage and event use, the QuikPunch comes with 4.5 hours of runtime (at full intensity) and a sharper and easier-to-control optical

footprint. It outputs an accurate zero-spill beam just like a theatrical PC fixture but it can also be the equivalent to a traditional 650W Fresnel luminaire.

The 60° beam angle makes it suitable for evenly illuminating large surfaces like cycs or set pieces. Unlike conventional Fresnels, the light can be accurately shaped and controlled via a set of 8-way barndoors. Even at 45°, it reportedly produces a sharp and controlled beam. The barndoor benefits from the QuikPunch's accurate Fresnel-based beam performance, even when the zoom is not in the flood position. The zoom is adjusted simply by turning the QuikTurn barrel of the



fixture and stops at 30° indicating the centre of the zoom range.

The QuikPunch is designed to hold all existing Astera AX9 PowerPAR filters and front attachments. It works particularly well with the rotatable 17° x 46° elliptical filter which widens the beam coverage on both vertical and horizontal axes. The

Once a Rebel, always a Rebel

MARKING THE first product in a new series, the Rebel Profile from Elation is a compact LED profile fixture with an IP65 rating suitable for both indoor and outdoor applications. The unit features a peak field 500W white LED engine and up to 22,000 lumens, delivering



high-intensity beams and sharp projection for impactful stage and event lighting. Features include CMY colour mixing, variable CTO and a 7-position colour wheel with high CRI (80/90) and UV options.

It is also equipped with a rotating and fixed gobo wheel, full animation wheel, dual prisms, dual frosts and high-speed iris. The fixture's advanced framing system allows for full blackout shutter cuts, with a wide zoom range of 3.5–51° for precise beam shaping and control.

www.elation.global

www.astera-led.com

One-stop sound

Vincent Manwa, senior audio technical lead at Sound Creations, considers the importance of client relationships and satisfaction in its HOW projects



Vincent Manwa

SOUND CREATIONS IS A

professional AVL and acoustics specialist based in Nairobi, Kenya, and has over 20 years of experience in the house of worship sector, delivering integrated AV solutions to churches, mosques and religious institutions across East Africa. The company's projects are primarily in Kenya, Rwanda and Tanzania, supported by offices in Kenya and Rwanda.

The company is also the exclusive authorised dealer of several worldwide brands, including Allen & Heath, Biamp, ChamSys, dbTechnologies, NEXO, Shure, Sommer Cable and Yamaha.

"We believe that our distribution models set us apart from the rest by offering direct customer sales," explains Vincent Manwa, senior audio technical lead at Sound Creations. "We also offer reliable and expert shipping partners to ensure goods reach the client in the best time and condition. We pride ourselves on our customer orientation skills, transparency and efficiency."

Sound Creations has been working alongside Africa distributor PAXT for over 20 years. PAXT identifies and trains technicians, and develops projects directly with systems integrators in sub-Saharan Africa. PAXT business development managers in Kenya and Nigeria identify systems integrators and, with the help of an MEA project manager in Cambridge in the UK, train the SI's engineers on leading platforms, such as Allen & Heath's DSP solutions. "In a region impacted by counterfeit products, our relationship with PAXT helps us prioritise authenticity and long-term value over short-term gains," says Manwa.

"We strive to create one-stop solutions," he continues. "Our products are selected to ensure absolutely optimum value for money. Our biggest challenge is



Just short of 100 QSC speakers have been installed at Burhani Masjid



The Mombasa mosque features an Allen & Heath SQ-6 mixer at FOH

to balance the quality and price factor. Our aim is to raise standards while remaining affordable for the current buyer. Technology, reliability, durability, ease of use and affordability are all things that we consider while selecting our brands and products."

Sound Creations begins each project with a site survey and

system design using tools such as EASE. Follow-up meetings ensure that client expectations are being met before equipment is ordered and installed. Client training generally takes place over a 1-month period, followed by a comprehensive project handover at the end. "We focus on delivering reliable AV systems that serve both large congregations and smaller worship spaces," describes Manwa. "We're always being asked if high-quality sound is possible without extensive acoustic treatment, so we conduct thorough acoustic modelling and design customised systems with precise speaker placement. When needed, we recommend minimal acoustic enhancements to maintain clarity and aesthetics."

Manwa has seen a noticeable shift to hybrid services and an increased need for streaming infrastructure, remote AV control

enhances the worship experience and AI-powered tools such as auto-tracking cameras and intelligent mixing systems on the rise, we want to make sure that our solutions are reducing the operational burden on non-technical teams."

At Burhani Masjid, the largest mosque in Old Town Mombasa in Kenya, Sound Solutions has recently implemented a discreet, high-definition sound system designed for daily prayers and sermon coverage, prioritising clarity and ease of use. The company has also designed, supplied, installed and now maintains the AV systems for the entire CITAM Church network, which includes 35 churches across Kenya. Each campus operates a robust Allen & Heath control system, with ME personal monitoring and dbTechnologies for public address, ensuring consistent performance across all locations.

"We offer scalable, cost-effective modular systems for smaller congregations right up to full-scale AV integrations for larger cathedrals," describes Manwa. "Our engineering team ensures each solution is appropriate to the size and acoustic complexity of the venue. With our brand partnerships, participation in AV tradeshows and worship events, plus online content and educational workshops across the region, over 60% of our business comes from referrals, and we hope this reflects strong client satisfaction and ongoing technical support."

With plans to expand into Uganda, Ethiopia and South Sudan in the coming months and years, the company is also hoping to increase AV training for church operators, encourage adoption of networked and energy-efficient systems, and strengthen its partnerships with leading AV manufacturers.

www.soundcreationsltd.com

Power

These days we hear a lot about it.
Some say there's *way too much power* in one person's hands...
But others just love it!



Trade and supply chain barriers leave business in a cautious mood.
But there is a silver lining:

The new **Adamson XG Integration Amplifiers** embrace an array of technologies, delivering stellar performance unmatched in Pro Audio. Up to 16kW in 4/8 channels of high efficiency power made in North America.* Canadian aluminum, American steel. No tariffs. No barriers. *USMCA compliant

The **XG Milan Endpoint** connects via standard protocols. Interactive touch accesses system CPU. Immersive ready, primed for Array Intelligence.

These days uncertainty has disturbed availability of integration power, fraying nerves, trying relationships.

Not anymore.

Sound Forward