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TECHNOLOGY SPOTLIGHT

Kingdom Legacy LIVE

Review:

CRYSTAL SCREENS
ALR PROJECTION SCREEN PAINT
STOMP BLUETOOTH® 4.0
PAGE TURNER PEDAL & APP CONTROLLER
BY CODA MUSIC TECHNOLOGIES

Out of the Box:

APPLIED ELECTRONICS VWT
DPA'S NEW 4560 CORE BINAURAL
HEADSET MICROPHONE
IQOYA *SERV/LINK FROM DIGIGRAM
THE MEGA-COUPLER® GROUNDER™
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WIDE SHOT



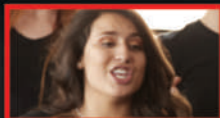
CROP SHOT 1



CROP SHOT 2



CROP SHOT 3



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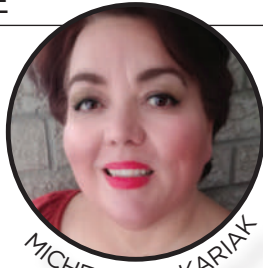
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EDITORIAL NOTE

I've been thinking quite a bit lately about the nature of worship, and how it has changed in my lifetime. When I was a child, I used to love rifling through the hymnals and reading the hymns we would be singing every week. Like everyone, I had my favorites so when one of those were printed in our order of worship, I was extra pleased. There was no worship band – there was an organ and a piano. Once every two months, it would be our church's turn to have service on the local radio, so I always knew the sermon would be especially fiery. And even after more than 30 years, the order my church's service already followed is engraved in my brain. These days, I can't even remember the last time I saw a printed program, or even opened a hymnal – and where would worship be without a band? Worship seems to be more interactive and exciting, and a lot of these changes have to do with the nature of our society and the evolution of technology and entertainment within it. For houses of worship, being able to meet the expectations of members used to finding music, videos, information, etc. with a few quick entries on a keypad or via the touch of a button can be a challenge – but it's a necessary one – and helping churches find the best solutions for their needs is the raison d'être of Technologies for Worship Magazine.

In our March issue, we not only look at several new products that should be



MICHELLE MAKARIAK

on your radar in our Out of the Box articles (Earthworks New SR3314 and the SR5314 Vocal Capsules, The Mega-Coupler® Grounder™ from The Light Source, Applied Technologies VWT, IQOYA

*SERV/LINK from Digigram and

DPA's New 4560 CORE Binaural Headset Microphone), we also have reviews for Crystal Screens ALR Projection Screen Paint and CODA Music's STOMP Bluetooth® 4.0 Page Turner Pedal. Our Technology Spotlight looks at the Kingdom Legacy Live event recently held at Oak Cliff Bible Fellowship, and we have articles on projection (The Difference Between Standard, Short Throw and UST Projectors, a Tech Tip on IMAG), audio (Choosing a Portable Church Mixer, Using In-Ear Monitors), Microphones (The Do's and Don'ts of RF Attenuation) and Loudspeakers (Understanding Audio Zones and DSPs) to name just a few.

We are also proud to be a media partner with the all-new Church Facilities Expo (www.churchfacilitiesexpo.com), which will feature keynotes, seminars and an exciting exhibition show floor at our inaugural event in Dallas this September. Keep checking in for more info on that, and sign-up for emails to keep informed at the website above. As always, thanks for reading, and if you have any questions or requests, just let me know via email at mm@tfwm.com, or text/call me at 705-500-4978. God bless and enjoy the Spring! **T**

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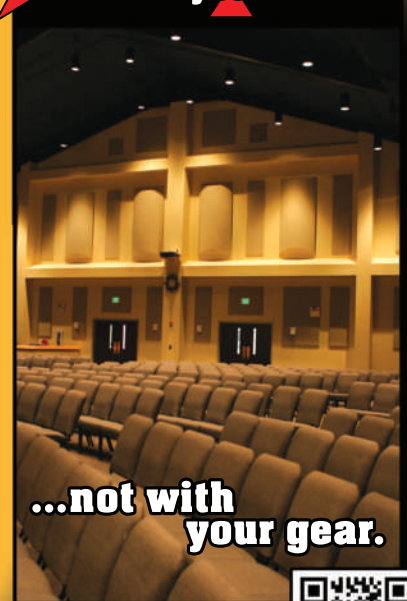
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Lawo launched its 50th anniversary celebrations in January with a Michelin-star studded party for its 300-plus employees in the company's hometown in Rastatt, close to the Rhine River and the Black Forest region of Germany. The milestone anniversary follows the company's most successful business year to date, achieving a record revenue result that represented growth of 40 per cent. This exceptional performance was generated by an extraordinary uptake of Lawo's IP media solutions based around core products of video, audio, workflow and monitoring technologies.

Founded by Peter Lawo in 1970, Lawo started out as an engineering

office providing bespoke technical solutions before focusing on broadcast and media production technology. The creative drive of its founder and his son Philipp, who took over as CEO in 1999, ensured continual innovation helped evolve and grow the company into a truly global player.

The company's early vision of IP becoming a single, unified infrastructure for all types of signal transport in broadcast and media production triggered a clear corporate strategy that has resulted in the IP native focus of the company today. This included the development and definition of RAVENNA as an open media-over-IP standard over ten years

ago. Lawo's belief in open industry standards and its active contribution of experience and knowledge to industry organizations have also helped pave the way for AES67, Ember+ and ST2110.

Constantly seeking to provide competitive advantages for customers through solutions no one else has imagined, Lawo pioneered the remote production concept when open-standard IP had barely learned to walk and when ST2110 was not yet on the horizon.

Today, Lawo enjoys the reputation of a premier supplier of future-proof media infrastructure solutions that enable world class content production. Lawo is today involved in more projects than ever before, the scale and scope of each of these projects is skyrocketing, as customers recognize the potential of open-standard IP solutions and seek to leverage the freedom it affords to completely rethink their workflows.

"Lawo has witnessed exceptional growth based on our growing expertise and product portfolio" says Jamie Dunn, Chief Commercial Officer. "We are very proud of the evolution of the company over the past 50 years and understand the importance that our talented staff, loyal customers and innovative mindset will play in securing another successful 50." ■

The Behind the Scenes Mental Health Initiative Seeks Therapist Recommendations

Last fall, Behind the Scenes conducted an online survey of industry members which received an unprecedented response. This was followed by two focus groups in January to delve deeper into some of the issues and concerns raised in the survey responses. One of the most frequent complaints we heard was how difficult it is to find a therapist who knows anything about the entertainment industry and who is available to see people on nights and weekends or through teletherapy.

As one of the first programs of our mental health and suicide prevention initiative, we are partnering with HelpPro to create an online therapist finder specifically for the entertainment industry. This means that we are seeking therapists who either have personal experience in our industry or who have previously seen clients who work in the industry and learned about the unique pressures and stresses.

In order to make this program a valuable resource for the industry, we need the assistance of everyone in the industry

who has seen a therapist they thought was helpful. If you or a family member have experience with a therapist you think should be listed on the finder, please send their contact information to mh@btshelp.org. We'll reach out to them to let them know when the finder is ready for them to sign up.

They'll be asked about their experience in the industry and will complete an extensive questionnaire that includes their areas of specialty, what insurance they accept and whether they have a sliding scale for those not covered, whether they have weekend and nighttime office hours or will conduct phone or video sessions, and much more. This will allow those seeking counseling to find the best possible matches for their needs.

We are hoping to launch the new finder in late March or early April – contingent upon having enough therapists listed to be useful.

For additional information about Behind the Scenes, visit www.behindthescenescharity.org or call 212-244-1421. ■

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Digital Projection's M-Vision Laser 18K Maps History onto Bavarian Baroque Masterpiece

Passau, located in Bavaria in the South of Germany, is steeped in history rich with Baroque influence. The city's design is dominated by large squares, romantic promenades and majestic bridges, and framed by the Veste Oberhaus castle and the Mariahilf monastery, the historical center looks like a floating ship. At the heart of its spectacular skyline is St Stephen's Cathedral – created in the 17th century by Italian Baroque masters and home to the largest cathedral organ in the world. This was the impressive backdrop for 'Symphony of Light and Sound' – a projection-mapping showcase displayed on the façade of the imposing building.

Symphony of Light and Sound celebrated 350 years of Passau's

PHOTO ABOVE, COURTESY OF PBP

Baroque masterpiece, with the multimedia show telling the story of the cathedral, and the documents and architecture within. The event also incorporated sacred Christian music and takes spectators on a journey back through time – visiting the church in all its iterations over the decades.

Harry Pillmayer, project manager for GF Bühnenfabrik GmbH & Co.KG, oversaw the delivery of this multimedia spectacle. "We've been working with the Cathedral for some time but this is the first time we have been commissioned on an outdoor projection of this magnitude and on a show with such a long run – so it's a really exciting project for us. We were looking for a compact, high-performance projector with matching optics and turned to Digital Projection's local event-distribution partner ETHA International GmbH & Co. KG, a

specialist professional AV distributor here in Germany – who specified an M-Vision Laser 18K for the job."

A powerful single chip DLP projector, the M-Vision Laser 18K boasts an impressive 18,000 lumens output and 10,000:1 contrast ratio. Delivering near 3-Chip DLP performance at a 1-Chip DLP price point, the M-Vision Laser 18K is a price-competitive large-screen imaging solution for installations and events where ample light output is required. With a host of features including DisplayPort accepting frame rates up to 60Hz; HDMI 1.4 for Side by Side; Frame Packing; Top Bottom 3D formats and motorized shift, zoom and focus across the whole lens range – it offers complete flexibility in an easy to set up package – making it a best-in-class projection solution.

Mark Wadsworth, Vice President of Global Marketing at Digital Projection, expands on what makes the M-Vision Laser 18K a good fit for projection on this kind of scale: "Thanks to its high brightness output and performance, a single projector allowed to map the entire cathedral to deliver a pristine show which exceeded the expectations from the event organizer."

In terms of technical set up, the content is delivered to the projector via laptop and Blackmagic Studio Pro HD production switcher. The reliability of the M-Vision 18K more than met the needs of the production, faultlessly delivery night after night for over a month.

The innovative display attracted impressive crowds. Relays Pillmayer, "We've been staggered by the number of people who have come to see the show to date – on average up to 1500 on site each week. The peak so far was Art Night in Passau, where we welcomed an incredible 5,000 spectators.

The ability to bring history back to life and translate stories from the past in a modern way is so important and deploying advanced technology helps us to deliver innovative solutions. We will certainly look to use Digital Projection's impressive products again." ■



Introducing the World's Fastest Editor

DaVinci Resolve 16s new cut page and editor keyboard let you work faster than ever!

The new cut page in DaVinci Resolve 16 is the first major innovation in professional video editing in over 20 years! Designed for short quick turn around projects, the cut page is all about speed. Featuring a streamlined interface with intelligent new "smart" tools, the cut page and DaVinci Resolve Editor Keyboard are designed to save you hours of time on each job.

Work Faster with Dual Timelines

The cut page features dual timelines so you never have to zoom in or out again. The upper timeline shows the entire program while the lower timeline shows the area in which you're working. With the dual timelines you'll always know where you are because you always have a zoomed in timeline that's ideal for trimming and fine tuning your edits using the contextual tools.

Use Source Tape to Quickly Find Shots

Finding the right clip in a bin with hundreds of files is slow. With source tape you no longer have to waste time hunting through bins to find the clip you need. Source tape makes all of the clips in your bin appear in the viewer as a single long "tape." This makes it easy to scrub through all of your shots, find the parts you want, and quickly edit them to the timeline!

Instantly Edit Between Angles with Sync Bin

The sync bin completely revolutionizes multi camera editing! It displays all of the shots from different cameras that are in sync with the current shot in the timeline. You'll see the angles stacked as film strips in the bin, along with a multi-view display in the viewer so you can instantly choose a different angle and make perfectly synced cut aways.

DaVinci Resolve Editor Keyboard

The DaVinci Resolve Editor Keyboard lets you edit with both hands, dramatically speeding up your workflow! It's a professional keyboard with transport controls on the right side and edit functions on the left side. You can use the search dial and source tape buttons with your right hand to locate shots, while simultaneously marking in and out points, performing edits and live trimming with your left hand.

DaVinci Resolve 16	Free
DaVinci Resolve Studio 16	\$299
DaVinci Resolve Editor Keyboard	\$995



Young Life Conference Shines with Bandit Lites and Lumina Design

Young Life, a non-profit organization aimed at encouraging adolescents to seek and grow a relationship with Jesus Christ, recently held its YL2020 conference with a lighting package supplied by Bandit Lites. The event, held every four years, took place at Disney's Coronado Resort January 5-10, and more than 5500 people gathered to worship, learn, and celebrate the group's 80-year old mission.

"Ethan Pagliaro initiated the lighting equipment and design in August 2019,

reaching out about working with Access Audio and Lumina Design for the Young Life 2020 conference," said Bandit Lites Client Representative Shawn Lear. "Bandit Lites has partnered with both firms throughout the years on CHIC and other events. With months leading up to the event, we were able to work with the designers to come up with solutions that achieved the design and big looks needed for the venue space."

Lumina Design worked with Production Manager Ethan Pagliaro to bring

a 360-degree stage and maximum trim height of 25 feet to its maximum potential.

"The producers wanted the room to come alive for every guest regardless of their seating; for everyone to feel fully involved in the entire experience," explained Matt Brewer of Lumina Design. "To help fulfill that vision, we placed a large amount of emphasis on lighting around the perimeter of the room and along truss fingers that jutted out into the space from stage."

Key lighting was a specific

concern of the conference's producers, with discussions beginning at the initial design meetings. Lumina Design remained dedicated in their efforts to deliver an exceptional package to the Young Life team. By choosing Bandit Lites, the world's elite leader in lighting to execute that package, the result was a remarkable system that stood out to the producers and those in attendance.

"Thankfully on the first night of the event, one of the same producers came up to Daniel Smallbone, the LD, and thanked him for taking it so seriously," said Brewer. "We had delivered what they were hoping for! From there, the instruction was to build a fun, lively experience for every unique performance."

Bandit Lites supplied more than 230 fixtures for the conference, including Martin MAC Viper Profiles, Chauvet Rogue R2X, Ayrton Ghibli, GLP X4 fixtures and two grandMA 2 Full consoles for control.

"Daniel and Matt are exceptional in their understanding of the lighting palette," said Lear. "With an array of fixture automation features and intensity, Lumina Design achieved the client's expectation in creating a warm, interactive space for the audience."

Lear also suggested Bandit's newly acquired Chauvet R2X washes. Over one hundred were placed round the room, and their output and canvas of color delivered exceptional looks. **T**



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Earthworks New SR3314 and the SR5314 Vocal Capsules

Earthworks Audio has taken another step into the live sound reinforcement market with the release of the SR3314 and the SR5314 wireless vocal microphone capsules. These wireless capsules are designed to bring studio clarity to the stage.

The SR3314 goes beyond the promise of delivering studio quality sound onstage by directly addressing the challenges intrinsic to these dynamic environments:

Tight cardioid polar pattern with a consistent frequency response all the way out to 90 degrees off-axis means the SR3314 delivers the same quality of sound even when the singer moves off-center.

Extreme attenuation of sound sources located beyond 90 degrees with maximum rejection at 180 degrees.

Consistent low frequency response across a wide range of distances, providing articulate detailed bass up close while not getting thin with distance.

The combination of these features imbues the SR3314 with levels of feedback immunity and isolation from unwanted sound sources not found in other brands of microphones or microphone capsules, regardless of price.

“Engineers and artists want the clarity of a studio condenser on stage, but it’s historically been too risky,” says Gareth Krausser, COO for Earthworks. “Our new vocal capsules change that. These microphones behave like a dynamic mic but they have that enveloping immersive sound that connects the audience to the artist.”

The sound is achieved by coupling the studio-quality

small diaphragm cardioid condenser capsule with a Class A amplifier circuit that leverages Earthworks patented and proprietary technologies. This combination makes this, what Earthworks calls, “the most responsive and fastest microphone capsule on the market.”

The extended flat frequency response and a focus on clean impulse response also what’s designed to set these capsules apart. But it’s their tight cardioid polar pattern, their consistent low frequency response across a wide range of distances, and their extreme attenuation of sound sources located beyond 90 degrees — with maximum rejection at 180 degrees — that makes them ideal for live performances.

“Our vocal microphones deliver the same quality of sound even when the singer moves off-center,” says Krausser. “There’s no proximity effect. They eliminate feedback and their off-axis rejection is outstanding.”

The SR3314 is designed to work with any handheld wireless transmitter that utilizes a standard 3-ring concentric connector. This includes wireless microphone models made by Shure, Lectrosonics, Sony, Line 6, Audio-Technica and others with a compatible 3-ring connector.

The SR5314 is designed to work with the following from Sennheiser: Digital 9000 Series, Digital 6000 Series, 2000 Series, Evolution G4 500 Series, Evolution G4 300 Series, and Evolution G4 100 Series.

Both capsules have a MAP of \$699 and will be available through all traditional pro audio and MI channels. ■

Available in February.

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Applied Electronics VWT (Video Wall Truss)

Appled Electronics newest addition to an already prestigious line of specialty truss products is Video Wall Truss (VWT). Applied VWT offers a unique way of rigging video wall tiles, using a recessed fifth chord of truss. The fifth chord is recessed into the truss allowing the video tiles to be hung as close as possible to the truss and offers a level clean look at maximum trim height for the rig. The Applied VWT eliminates the need for extra rigging, counterweights or being forced to hang box truss on the diamond – which drastically de-rates the load capacity of the truss. Video

Wall Truss is designed for fast, easy, safe and efficient loading of video tiles with standard entertainment rigging hardware. VWT is designed and manufactured with the same top-grade aluminum and high-quality craftsmanship that is found in all Applied products.

Using Applied VWT truss to hang video wall tiles also allows for the flexibility to change the size of the video wall display. The Applied VWT can be rigged on its own as a standard HD truss, or combined with our standard entertainment style HD box truss. The Video Wall Truss is compatible with Applied standard HD truss when not using the VWT to hang video tiles, which

adds to its versatility. If there are rigging challenges to the architectural space, the VWT can also be integrated as an upgrade into any of the Applied Goal Post Systems, with 12", 16" and 20.5" straight sections available as plated or spigoted truss. While the VWT comes in standard lengths, custom lengths and corners are available. Powder coating is also available as an option from Applied. The size and type of VWT needed is dependent upon the size, weight and type of video wall being constructed. The Applied design and CAD team will design and draft the VWT to any specifications, and manufacturing will

begin once all designs are approved. Applied VWT is load certified by an independent engineer and has complete load data table information available.

When considering the installation of an LED screen for weekly services, festivals or holiday productions the Applied Video Wall Truss for the video support system should be on your radar. This specialty truss product allows video wall tiles to rig tight to the truss, to take advantage of the maximum height of the space in order for entire congregations to view the video content without obstruction. For more information please visit appliednn.com ■

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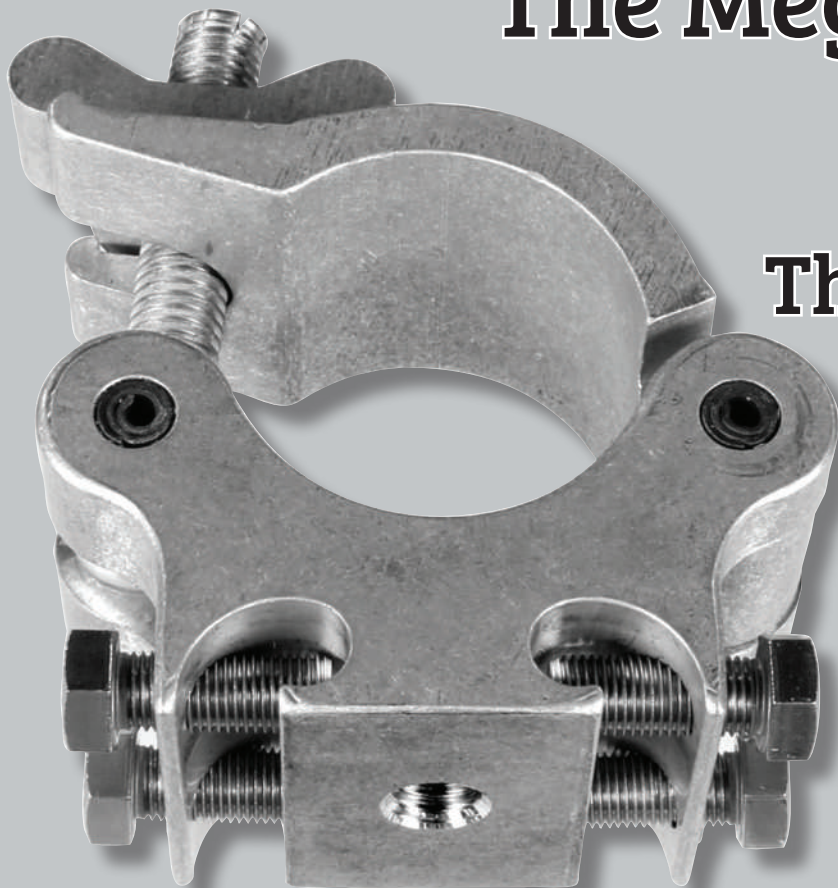
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The innovative Audio-Technica MicroSet headworn microphones have been redesigned to provide even greater performance and versatility. The three new models – BP892x, BP893x, and BP894x – operate with a detachable, field-replaceable cable that is available in multiple terminations for use in a wired configuration or with wireless systems from Audio-Technica and other manufacturers. The lightweight, ergonomic design hooks the headset behind and below the ear for a secure, inconspicuous fit that ideally positions the mic for clear, natural vocal reproduction. So no one misses your message. audio-technica.com

audio-technica

The Mega-Coupler® Grounder™ from The Light Source



grounding conductors by tightening the hex bolts to 12.5-foot pounds of force, (150-inch pounds of force) [16.9 N m]. The Mega-Coupler® Grounder™'s two slots and hex bolts may be used to carry the grounding conductors back to the building ground system, or on to another structure. Grounding conductors may be inserted mid length without cutting the conductors to provide continuous grounding paths. For your convenience, the torque values for field installation are marked on the Mega-Coupler® Grounder™.

The Mega-Coupler® Grounder™'s base, link and wingnut are made of 6061T6 aluminum, all other hardware is made of stainless-steel and therefore requires no additional corrosion protection for both indoor and outdoor above ground use.

It is the responsibility of the worship facility to ensure that the all grounding procedures meet the provisions of the National Electrical Code (NEC) or other relevant prevailing codes.

Houses of worship should note that various sections or components of a temporary structure may not have a proper electrical grounding connection between adjacent components. Therefore, consideration must be given to ground bonding all parts of the temporary structure. For example, sections of a self-climbing truss assembly may be isolated by non-conductive elements such as nylon wheels, round slings or wood. Pipes, trussing and clamps may all have coatings that insulate them from a proper ground. ■

The Mega-Coupler® Grounder™ is now shipping.

The Mega-Coupler® Grounder™ solves problems you didn't even know you had! Just think of all the electrical items that are fastened to piping or truss rigs in your house of worship. If there is an electrical wiring failure, what is the path to ground? What might happen to anyone who comes in contact with an energized truss/pipe assembly? The new patent pending Mega-Coupler® Grounder™ is ETL listed to UL standard 467 in both the USA and Canada as a grounding clamp for pipe and truss structures. The Mega-Coupler® Grounder™ was ETL tested by carrying over 5,000 amps to ground without failure! Properly installed with a grounding conductor connected to the electrical system ground, the Mega-Coupler® Grounder™ solves these hazardous problems.

The Mega-Coupler® Grounder™ is intended to provide a ground connection for additional electrical safety for any mechanical structure

fabricated from truss, pipe or round tubing ranging from 1 5/8" OD to 2" OD. The Mega-Coupler® Grounder™ can be used with either copper or aluminum grounding conductors ranging from 14 gauge to 1/0. The grounding conductor should be sized for the maximum electrical power utilized on the total electrical equipment connected to the pipe/truss assembly. The Mega-Coupler® Grounder™ device employs 6061 aluminum and stainless-steel corrosion resistant materials of construction to accommodate both indoor and outdoor above grade installations. Installation in the field must be in accordance to NFPA NEC 70.

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IQOYA *SERV/LINK from Digigram



Digigram's IQOYA *SERV/LINK is a multichannel IP audio codec in a 1-RU unit that handles up to 64 stereo channels (128 mono) designed for live remote broadcasting, including houses of worship looking to broadcast audio to satellite locations. The IQOYA *SERV/LINK essentially uses the public Internet or a user's WAN as a digital audio snake.

This codec provides a more powerful and more compact audio-over-IP solution that allows users to send multiple audio programs simultaneously to a variety of destinations — such as remote studios, church satellites, FM transmitters, a DVB/cable operator or Web radio CDNs — using one single piece of equipment. This powerful and compact audio-over-IP solution meets the rising demand for robust multichannel

encoding and decoding capabilities in space-limited facilities.

Additionally, the codec offers broad audio I/O support, including Dante, AES67, AES/EBU, MADI, RAVENNA/AES67, and analog connectivity, which enables greater interoperability. Plus, the IQOYA *SERV/LINK can be fully controlled and monitored from its embedded WEB pages and through SNMP or web services.

The IQOYA *SERV/LINK is available with analog and AES/EBU I/O (up to eight stereo analog I/O), AES/EBU-only (up to 16 stereo analog I/O) or MADI I/O (up to 64 stereo analog I/O). The unit also features up to 16 RS-232 ports and 16 GPIOs for auxiliary data tunneling. The IQOYA *SERV/LINK also facilitates multi-format encoding and multiprotocol streaming of each input and enables the

decoding of multiple audio programs, providing users with the option of defining three decoding priorities for each program, including local sound files and playlists.

IQOYA *SERV/LINK is ideal for applications including multichannel home church-to-satellite church links, studio-to-transmitter links, multichannel studio-to-studio links, multiple four-wire commentary connections over IP, delivery of Web radio to CDNs and the delivery of multiple audio programs to DVB/cable operators. The unit features multiple levels of redundancy for audio service continuity and failsafe operation, including 2 hot-swappable power supply units, 2 Gbit network ports with stream redundancy, audio failovers and 1+1 hot device redundancy.

Featuring Digigram's

Fluid-IP technology, the IQOYA *SERV/LINK offers resilient audio transmission over unmanaged IP networks. The benefit of Fluid IP lies in the fact that it is the most adaptable solution regardless of a user's network bit rate or performance. True redundant streaming and forward error correction are all standard features in Digigram's infrastructure.

For the last 30 years, Digigram has designed and developed innovative digital systems that help users easily deliver their content. Digigram's IQOYA *SERV/LINK makes an ideal solution for houses of worship that have multichannel audio coming from their services and want to transmit these audio channels to another campus or satellite church, receive the signals and remix them for that new acoustical space. **■**

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DPA's New 4560 CORE Binaural Headset Microphone

House of Worship sound designers, podcasters, vloggers and other content creators, including filmmakers who want to capture authentic immersive audio for their church projects, can now do so with ease thanks to the launch of the new 4560 CORE Binaural Headset Microphone from, DPA Microphones.

The new binaural headset delivers the superior sound quality for which DPA products are internationally renowned. The professional quality of the microphones allows them to capture, in real time, exactly what each ear is hearing so that those listening on headphones can experience the full immersive sound. These qualities are also appealing to other applications such as sound system documentation, soundscape analysis, sound quality assessment, and sound for theatrical productions, among others. Worship teams have also seen the potential in this mic: recording the sound from the performers' perspective instead of the audience's is a completely new way of sharing the artists' sound experience with fans. The result, an ultimate surround experience.

At the heart of DPA's new 4560 CORE Binaural Headset is a pair of 4060 CORE Miniature Microphones mounted on two ear hooks and sitting just outside the user's ear canal (like a pair of earbuds). This makes it possible to directly capture (1:1) the sound heard by the person making the recording. The ear hooks are attached to a flexible headset that is simple to fit, comfortable to wear and easily adjusted

to suit the dimensions of each individual head. Foam screens are supplied with the microphones to secure their position and offer damping of wind noise.

In addition to being easily worn, the 4560s can attach to recording gear, like DPA's MMA-A Digital Audio Interface, that connects to any iOS-devices. This gives users a quick and convenient mobile binaural recording solution for any setting.

"Recordings made with DPA's 4560 CORE Binaural Headset are so accurate that listeners often turn their head looking for the source of the sound," says DPA Product Manager Rene Moerch. "Ideally, content recorded with this product should be listened to via headphones as the audio experience is much different when played back over stereo speakers. However, there are techniques that can provide corrections and upmix for stereo and multichannel formats, making this product useful for film recordists who want to gather content for atmospheric sound."

Moerch adds that another useful feature of a DPA 4560 CORE Binaural Headset Microphone is its ability to deceive; the microphone is so small that someone wearing the headset may look like they are only wearing earbuds. Moerch says that "Binaural recording provides content that is much more immersive, alive and compelling compared to traditional recording techniques.

DPA's new 4560 CORE Binaural Headset Microphone is listed at \$1099.95 USD. **T**

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Building Strong Volunteer Teams

BY JOHN CHEVALIER

People are our greatest asset. In the church we must remember we are “powered by volunteers”. Here are some ironclad principles that have worked in building strong volunteer teams.

SET HIGH STANDARDS AND HAVE CLEAR WRITTEN GUIDELINES

Sometimes we hurt ourselves by making the assumption that ministry is an inconvenience, so we require less than is actually needed. I have found that people really want to be a part of something bigger than themselves. Set the bar high. Let people see that they will have to learn some new things, but what you do is vital to the worship life of the church. Standards communicate excellence, which will draw more people in.

COMMUNICATE COMMITMENT

Teach the concept of “TEAM” and communicate that those who do not show up when scheduled hurt the entire group. Commitment is an important part of building a strong team.

COMMUNICATE EXPECTATIONS

Many people get burned out in ministry because they don't know what's expected of them. Things such as being at rehearsals or occasional team meetings. Did I mention being on time? How about an apprenticeship period? This helps the volunteer see the ministry as you train and evaluate. This is a great way to break in new volunteers and allow them to explore this area of service.

BUILD SOLID RELATIONSHIPS

It's important to build relationships with your team. Take the time to get to know them as people. One way to build relationships with your team is to spend time together socially. This is a great way build strong relationships. Remember that Jesus died to restore a broken relationship between humanity and God. I think that alone is a good enough example for us to build lasting relationships with those on our team.

ENCOURAGEMENT IS THE MOST POWERFUL TOOL YOU HAVE

People respond to praise. We need to reward those who are serving. I Thessalonians 5:11 says; “Therefore encourage one another and build each other up.....” Give encouragement to your team, and lots of it.

After one particular service my pastor told me how much he appreciated what I do for the church. I thanked him but then asked if he would take the time to say this to the entire team. He agreed and wrote a personal letter thanking them for their efforts in serving. The fact that our team got a personal letter from the pastor was a tremendous encouragement to them, one that they didn't soon forget.

ACKNOWLEDGE THEM PERSONALLY

Remember that people serving are not robots who help us carry out our calling. We are there to help them discover their calling. One way to do this is to make a list of everyone's birthday and anniversary and send

them cards. I include their spouse and kids on this list. If you set this up right, it becomes a self-managing administrative procedure that can mean a lot. Depending on the number of people, this takes anywhere from half an hour to an hour per month, a small amount of time when you think about the hours that most volunteers put in.

SUPPORT THEM PRACTICALLY

If anyone on your team has a physical need, you should be the first one to go to bat for them. Whether it's needing groceries, gas money, or help finding a job, be there for them. Over the years I have helped people to get clothes, Christmas gifts for their family and auto repairs.

INVEST IN THEM PROFESSIONALLY

Get them the ongoing training that they need. Our church purchased our audio engineers a subscription to Mix Magazine. Have regular meetings outside of rehearsals for continuing education. Another aspect of professional support is to give leaders the authority to carry out their ministry. Whenever you give someone a responsibility, make sure they get the authority to carry it out. Make sure that they get the credit for a job well done and make sure that YOU as a leader TAKE THE HIT if they make a mistake.

REMEMBER THEM IN PRAYER

Pray for them regularly. You are probably aware that, most churches spend more time talking about prayer than actually praying. Let's change that, and let's begin with lifting up those who are serving with us in ministry. Sorry to get spiritual on you there, but it just makes good sense.

In closing, remember one of the best things that you can do to build strong volunteer teams, is to continue to learn and grow yourself. Regardless of your ministry area, a leader who continues to grow and invest in people, is the leader who will ultimately be able to hear those words; “Well done, my good and faithful servant.” **T**

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Choosing a Mixer for Your Portable Church

& Maximizing Your Portable Church Sound

BY TIM ADAMS

The process of choosing a mixer that is right for your church can be arduous. Often times, we start from where you are now. How many channels do you currently have and how many more do you see needing in the next five to ten years?

As an integrator, the way I generally operate is that if your house of worship currently has a 16-channel mixer and you are in the market for a new mixer, it's probably time to step you up to a 24-channel console. The idea is to build in growth capability and eliminate the need to have to replace your mixer again in the near future. If you anticipate moving from a traditional worship service to a more dynamic service, I might suggest doubling that to 32 channels simply because channels disappear quickly when you start factoring in your wireless microphones, instruments, and local sources like computers.

Once you have established your channel count, it's important to start looking at user interface. This is everything from how easy it is to control things like EQ, gain/preamp level, setting up subgroups, DCAs or Mute Groups to changing settings and preferences. Since the UI is how we interact and control the mixer, it is important that the experience be easy to understand, easy-to-use, intuitive and powerful. Another consideration is the knowledge and experience level of your techs-do they understand signal

flow and things like gates, compressors and limiters? If not, then there will need to either be some training that is necessary or you might consider looking at an easier-to-use mixer.

Being in a portable environment means not having a lot of time to troubleshoot issues, so reliability of the entire system – not just the mixer – is hugely important. Therefore, buying a mixer with a proven track record in a portable environment is better than finding a deal on Amazon from a questionable source or manufacturer. Knowing your equipment is solid is a huge stress reliever and should not be overlooked. There are steps you can take to help protect the longevity of your mixer, for example making sure it is only plugged into a power conditioner to help protect it from power surges, blackouts, etc. There are hundreds of stories of mixers failing because they were plugged into unprotected power sources. It's a cheap insurance policy, often costing less than \$100 for a good quality option.

Something else to consider is whether your mixer will have a digital snake or an analog snake. The analog option has the highest reliability, though they do fail over time. Digital snakes take much less time and are far easier to deploy and take a fraction of the space, though they are not bulletproof, either. It is important to research these options and if you already have an analog snake solution that

everyone is trained on and has no problems, it may not make sense to retire that snake in lieu of a new digital snake. You have to make the decision that is right for your particular situation and team; there is no one-size-fits-all answer here.

Maximize Your Sound

Once you have your mixer sorted out, let's look at how to maximize your overall system. Start at the microphone to make sure you are getting the best sound into the system possible. This means proper microphone etiquette: the mic should be no further than two fingers away from the person's mouth (for handheld mics). Any further and the cardioid microphones begin to struggle to pick up the best sound levels. Once the sound gets to the mixer, it is important that you have gone through the ringing the room process, if at all possible. This process involves taking every microphone on your mixer and maxing out the fader level and zeroing out the

gain or preamp level. While someone is talking on the correct microphone, you turn up the gain/preamp until you get feedback. Then reduce the gain/preamp by about 10%. This process gives you the confidence to max out your fader for every mic channel without getting feedback. It also clarifies where your feedback level is in that specific room, with that specific microphone, on that specific channel. Ideally, you can also do your channel EQ setting if you have the band doing sound check at the same time. When you get good at this, you can establish your mix in just a few minutes. If you have a digital mixer you can save channel presets to your onboard library, further reducing the time to do this in the future. Please note that not all digital mixers have preamp or gain settings that can be saved, so it's important to do your research ahead of time before you purchase a digital mixer.

From the mixer we go to the amplifiers, whether they are at front of house, on the stage, or powered speakers. Ideally, speakers will be far enough apart to provide a decent stereo sound field to your church members. This means you can pan instruments and vocals left and right to match where these sound sources are located in relation to the audience. This has a subtle but powerful effect on those listening, providing a fuller, more natural sound to the ear and thus, providing a more pleasing overall experience for worshippers.

Depending on your space, the type of speakers you have, etc., you will have to experiment with speaker and subwoofer placement to find the best results, but don't be afraid to try new things. The one word of advice I have is to ensure your loudspeakers are not behind your microphones. This will help induce feedback, which we want to avoid so don't do it if you can avoid it.

The trick to maximizing your sound is largely understanding how EQ works, how to minimize feedback through proper mic etiquette and speaker placement. After that, it's small tweaks to really get the best sound possible. **T**



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Tech Tip: IMAG or Image Magnification



A Large Congregation Means That a *Larger-Than-Life* Image Is In Order

Back in the day, small intimate church congregations were a neighborhood thing. The pastor's face could be seen from any seat in the house and a microphone was the only real piece of AV gear one needed to have on hand. As our communities grow, congregations continue to increase in size as well. With larger venues comes the necessity to make the speaker's face visible to more than just those in the front row. This is where IMAG comes in. Forget about the catchy marketing vernacular, IMAG simply means "Image-Magnification" and it's exactly what you'd expect it to be. Put the speaker's face in front of a camera and project it larger than life onto a big screen for everyone to see.

What's the point of IMAG?

Through Image Magnification, that face-to-face intimacy is not lost even from several hundred feet away. Numerous scientific evaluations have been conducted on this topic and the general observation is that 20-25 feet (6-7.6m) is about the average point where the human eye starts to diminish in its ability to pick out the details in a human face. After 125 feet (38m), individual identification of a human face is virtually unrecognizable to most. This means that IMAG is an essential tool for speakers at anything from medium to large venue presentations. There are two ways to do this effectively; either through digital signage or through a projector and screen.

What Format & How Large Are We Talking?

The typical aspect ratio for a House of Worship IMAG screen will be 16:9 or HDTV. This is the standard format (or shape) of today's television screen. Simply put, a "16:9" screen format means that there are 16 units of measure in width that corresponds with every 9 units of equal measure in height. Some screens may have a 16:10 aspect ratio which is the standard screen shape of today's laptops and computers. If the church format tends to follow PowerPoint or other software-based presentations instead of movie content, then a 16:10 display may be more suitable. Either way, it's always best to have a projector and screen with matching aspect ratios. In regards to "how big?", a good target would be around 200-900" on the projection screen size. According to the Society of Television and Motion Picture Engineers (SMPTE), the recommended minimum seating distance from a projection screen is about 1.5 times the projection screen's width. According to my peers throughout the industry, the maximum viewing distance should be about 3-6 screen widths. This means if a church sanctuary that is about 100 feet (30.5m) in length, a 200" screen would serve it well since the minimum viewing distance will be around 22 feet (6.7m) and the comfortable maximum will be around 75 to 120 feet (23-36.6m). Larger venues should definitely consult a commercial integrator but

the screen size could be as large as a commercial theater screen which averages about 45-65 feet (14-20m) wide.

Why Projectors and Screens over Digital Signage?

Both projector screens and digital signage are commonly available in 4K high-resolution so image quality is a hard argument. The primary reasons to go with a projector and screen for Image Magnification are cost and convenience. A projection screen of around 200" is relatively light in weight (less than 100lbs./43kg.) Digital signage panels of the same dimensions, which will likely require a structural retrofit as they will weigh several hundred pounds/kilos. The cost is significantly lower for a projector and screen as they typically sell for a fraction of the cost that digital signage commands. Installing a projector and screen is so easy that it's often a DIY project so even professional installers don't charge that much for the installation. Installing a digital display often requires the services of a structural engineer and is far more invasive. The plus to digital signage is its superior performance against the washout effects of ambient light as well as its suitability for outdoor use.

Anatomy of an IMAG System

A good Image Magnification projection system can be manned by a team of camera operators under a director or it can be a one-man show. It entirely depends on what's desired. In a nutshell, from speaker

Cutting Corners Will Get You in the End

When working with assembling a good projection system on a budget, there are times where going cheap will definitely hurt you. Being thrifty will find you a good buy at a great price. Going cheap will ensure you will spend the least on your project but the return on your investment will not pay off. Remember the old adage that "Good product isn't cheap and cheap product isn't good". Be certain to go with trusted name brands that are favorably reviewed. If you want to save money without compromising the quality, it's often advised to buy last year's models. Avoid "fly-by-night" brands that have little industry feedback. They will likely ghost you if ever you have a technical problem.

to the viewer's eye it's the speaker/subject – camera/media players – switcher – Projector & Screen.

Speaker/Subject – This is the primary focus of the presentation. If it's a one-man show, a single point camera works. If you want multiple angles, then multiple operators under a program director will be in order.

The Camera – Is an essential piece of AV gear that should be carefully selected in accordance with your environmental lighting as well as the various ways you intend to use it. The 2 basic types are "cinema" or "Cine-style" and ENG (electronic news gathering) formats. While the question of "which is best" is hotly contested, I'll simply say that if it does 24 frames per second with good depth of focus (DoF), it can serve a decent role as an IMAG camera. I'll leave the trade

off between optional studio controls vs. large sensor with a cine-servo lens to the true experts. It's also important to mention here that the camera will likely be used in conjunction with laptops or other media players as well.

The Switcher – This will serve as the interface between the camera/media player and the projector. This is also useful in transitioning between the camera and media players during a presentation.

The Projector & Screen – As a projection screen maker, the projector & screen are definitely the hardware I am most familiar with. The most important points to remember are "Brightness, Throw Distance, Aspect Ratio, and Lag Time. For Brightness, shoot for something north of 5000lm (lumens) for the projector. The washout effects of ambient light are brutal. Screen makers make

specialty ambient light rejecting (ALR) materials for such an occasion and I strongly recommend both. Make sure that the projector's Throw Distance from the lens to the screen is good enough to present a clear image. The Aspect Ratio of the projector and screen should always match. The Lag Time is how long it takes for the projector to process the video signal and shoot onto the screen. It is measured in milliseconds (ms). For perspective, the human eye blinks at 300-400ms. It can be distracting if there is too much "lag time" between the speaker's motions and when those same motions finally appear on the video screen. I recommend a projector with a very low lag time. Anything less than 33ms is ideal for professional video gamers so my personal preference for IMAG is anything 50ms or less.

There is a lot of versatility in IMAG presentations but look at it first in its most elementary form. The basic objective of IMAG is to be seen. That's easy. The hard part is in delivering a compelling message now that all the eyes are on you. **T**

Dave Rodgers, is a professional author and marketing manager. He has over 20 years of experience in the AV and wireless communications industries and has made numerous television, radio and editorial appearances providing installers and do-it-yourselfers with easy solutions toward creating larger-than-life big screen applications.



Understanding Audio Zones and DSPs

BY JAMES CARELESS

In a perfect world, a house of worship (HOW) would simply set up a single loudspeaker at the front of the hall and be done with it. Everyone would be able to hear what was being said or played in perfect clarity; no matter where they were seated and what obstacles (like overhanging balconies) were in the way. You wouldn't have to blast the front rows with too much volume in order to reach the back. The sound level would be the same throughout.

Unfortunately, HOW audio occurs in the real world; one where the speed of sound (767 mph/1235 kph) causes audio delays for listeners seated far from

loudspeakers. Add in the audio echoes and distortion that can be caused by reflective surfaces (walls, balconies, and angles) plus the degradation of sound waves the further they travel from their originating loudspeakers, and providing clear, consistent audio reproduction throughout the hall can be a real challenge.

This is why house of worship AV people (and everybody else) need to understand the concepts of Audio Zones and Digital Sound Processing (DSP) to synchronize their loudspeaker systems, so that everyone in the room has access to the same audio experience.

Why Audio Zones Matter

Clearly, it is not practical to serve a medium-to-large sized hall with a single loudspeaker. Instead, a more sensible approach is to divide the room into 'audio zones' where each area has its own loudspeaker(s) in relatively close proximity to the people in that zone. "All of these speakers can be kept at a volume that is comfortable for the attendees, providing the same clarity across the venue, and minimizing the unwanted artifacts associated with high SPL (sound pressure level)," said Jim Schwenzer, director of technical support and service for Ashly Audio.

A number of factors determine how

Even in a simple rectangular hall, the limits imposed by the speed of sound, signal degradation/decay, and the reflective/absorptive properties of walls, windows, and attendees is going to affect the audio quality.

many audio zones a house of worship needs. For instance, one factor is the size of the room: The bigger it is, the more zones will be needed to ensure that the audio is visually synced with what is being seen on stage, as well as being played at a level that doesn't overpower the listeners.

Another factor is the number of sound-affecting obstacles like balconies, walls, and other surfaces that affect sound quality from distant loudspeakers. Managing these troublesome areas by making them into separate audio zones with their own

dedicated loudspeakers can minimize the problem.

Worth noting: The sound bleeding from these audio zones have to be time-delayed with respect to each other, so that the sound throughout the overall room is synchronized and intelligible. "If not, then the effect can be like standing on a high school football field when someone talks on the loudspeakers, and the overlapping audio has so many echoes and conflicts that you can't make sense of what is being spoken," said Jon Taylor, Head of Sales for PreSonus' Commercial

Division. "In a house of worship where hearing the message clearly is all-important, you can't tolerate this kind of audio distortion."

Proper Speaker Placement is Key

Once audio zones have been established, it is time to select, mount, and connect loudspeakers for each of these ones; and then to synchronize them so that the overall sound delivery is clear and clean everywhere.

Unless the house of worship has access to an in-house audio expert,

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this is a job best left to an audio professional – because making mistakes in this process can doom the audience to an ongoing audio nightmare.

“One good option is to contact someone local that you trust who does speaker installations for a living,” said Taylor. “Get them to come out and see the hall, to understand what you are up against. Once that expert comes up with a loudspeaker recommendation, see if they can loop in the manufacturer to help with the project, so that you get the best solution possible.”

The key word here is ‘possible’: Even in a simple rectangular hall, the limits imposed by the speed of sound, signal degradation/decay, and the reflective/absorptive properties of walls, windows, and attendees is going to affect the audio quality.

“Getting the best sound in a house of worship is a game of compromises,” said David Ellis, CEO/Owner of Ellis Pro Media. “Using a central point in the room as a reference point, you try to make every seat hear the audio as best as you can. But even then, it is not possible to deliver perfect sound.”

Digital Signal Processing

The task of synchronizing loudspeakers throughout a hall requires the audio output to be time-delayed in some speakers, to compensate for the speed of sound’s speed limits. Although there are a few ways to do this, the most popular method these days is ‘Digital Signal Processing’; namely using a digital signal processor (DSP) within the audio chain to fix problems.

“A digital signal processor is a marvel of modern technology, providing the capability to manipulate analog audio signals from the real world (a person’s voice or a musical instrument) in the digital domain,” said Schwenger. “In addition to equalization, bandwidth limitation, and dynamic compression, one of the things easily accomplished with digital technology is delay: The speakers at the rear of the hall can be delayed such that they align with the signal coming from both the front and mid-room speakers.” A DSP can also correct

“specific room anomalies” audio zones under balconies and other similar spaces.

This said, a DSP cannot correct fundamental errors in speaker selection, positioning, and output. “As well, the more digital processing you impose on a sound wave, the more distortion you add to it,” said Ellis. “So the first step in providing clear audio is making sure that your sound design is right for the space, and that you’ve done as much right as you physically can before turning to a DSP.”

Another Option: Digitally Steered Arrays

There is another way to deliver clear audio in large spaces with acoustical anomalies, and that is by using digitally steered phase arrays. These are vertical columnar arrays of loudspeakers – sometimes flown above the floor – that send out individual feeds of time-delayed audio to different parts of the room. The timing of each feed depends on the distance and audio issues it has to overcome. The result is a consistent audio feed throughout the space from one or more central points; minimizing or even eliminating the need to mount speakers in other locations.

“If you want an analogy, a digitally steered array is akin to one or more spotlights — each beam can be aimed at a specific area you want to cover, and each beam can be adjusted for tighter or wider focus,” said Daniel Keller, CEO of Get It In Writing, Inc.®. “With a steered array, you can focus audio to the parts of the room where it’s needed (the audience), and away from walls, windows, and other reflective surfaces that can decrease intelligibility.”

Again, Get a Pro

If the details above sound daunting – or even if they don’t – a wise house of worship AV manager knows that calling a pro offers the best chance at optimal speaker synchronization.

After all, people go to a church, synagogue, mosque, or temple to hear what the spiritual leader has to say. If they can’t understand these words due to poor audio reproduction, then they may not come back. **T**

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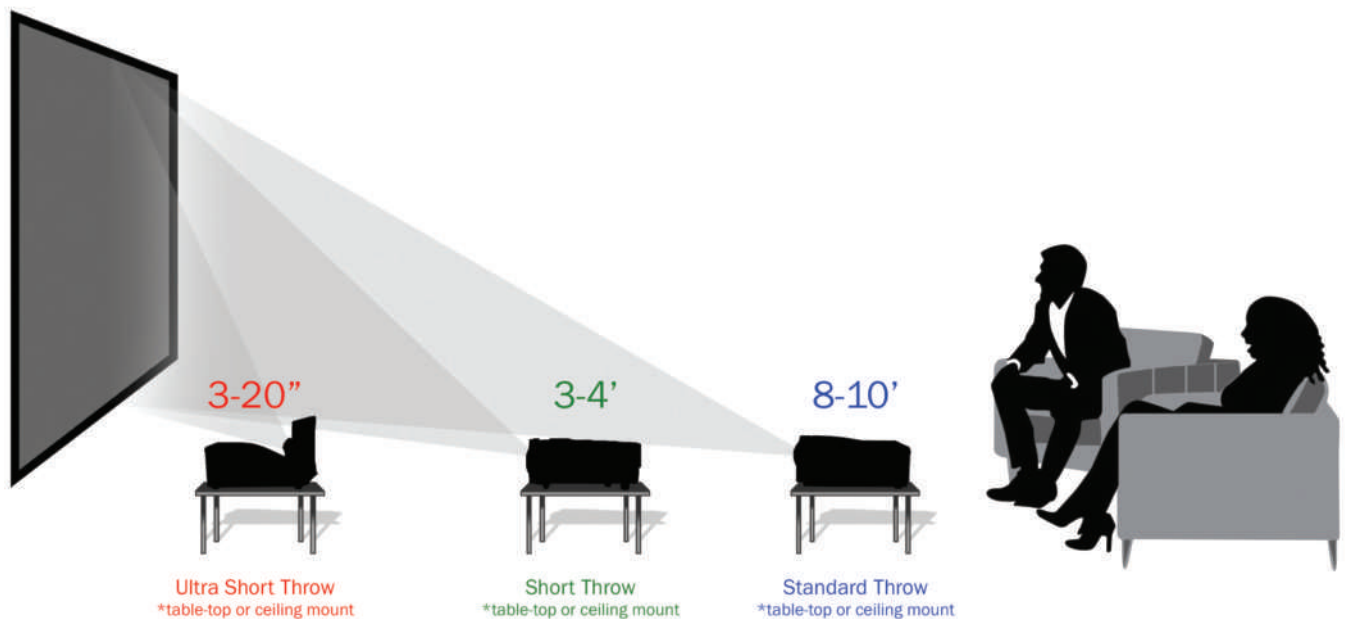
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The Difference Between Standard, Short Throw and UST Projectors

BY DAVE RODGERS



There are three primary types of projectors and they were all developed for a certain role. As a house of worship AV coordinator, this will be a crucial factor in setting up your projection display. One projector option presents a long “throw-distance” just like the movie theaters. Additionally, there are two projector options that come with short to ultra-short throw capabilities. These are typically better for accommodating classrooms as well as other smaller venues.

While matte white is typically the universal “panacea” brand, there could be problems that require better alternatives. This article addresses the main characteristics of Standard, Short Throw, and UST projectors as well as the materials that are most compatible with them. Before we start, let’s discuss throw distance since it is what sets these three projectors apart.

What is Throw Distance?

Simply put, throw distance is the measured expanse that the light must travel from the projector lens to the projection screen surface. Standard throw projectors typically create a 100” (16:9) image footprint from about 10 feet of throw distance. Short throw projectors can create the same sized image from less than half that distance (about 4 feet), and UST projectors will put up the same sized image in a matter of inches.

Different Projectors, Different Results

The three basic types of projector screens are Standard Throw, Short Throw (ST), or Ultra Short Throw (UST). For many house of worship applications, a much larger screen will be used. Consequently, a larger image will require a greater throw distance; always check with the projector manufacturer to make certain you have the right gear to get the job done. For the sake of simplicity here, we’ll work with a 100” HDTV aspect ratio.

Standard or “Long Throw” Projector

Note: A 100” / 254cm (16:9) image will typically require about 8-10 feet (244-305cm) of throw distance.

Standard Throw or “Long Throw” Projectors are the most common type of system found in houses of worship. They require the greatest amount of distance to make an image. They are compatible with virtually all projection materials. The exception would be “UST-ALR” (Ultra Short Throw - Ambient Light Rejecting) or “CLR” (Ceiling Light Rejecting) specialty projection materials. They can be used on regular or tensioned “white” or “grey” materials as well as any regular “ALR” or “rear-projection” material.

- Strengths are versatility for multiple installation contact points and larger venue applications. It will also work with

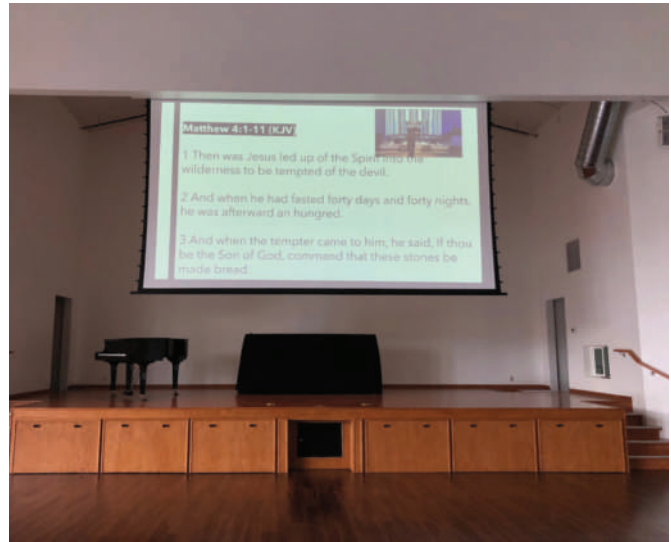
every type of projection material with the exception of ST/UST specialty materials.

- Weakness is the greater amount of space required to throw an image. Another side effect of “long throw” is that when people, animals, or any other objects come between the projector and screen, it will create a shadow over the projected image.

Short-Throw Projector

Note: In order to create a 100” / 254cm (16:9) image, a short-throw projector will typically require about 3-4 feet (90-120cm) of throw distance.

Short throw projectors were developed namely for presenters to work more closely with the projection screen without having the projector’s glare in their eyes. Another reason is that the close confines of many classrooms and training facilities don’t permit enough throw distance for a standard “long throw” projector. The “fish eye” design of the lens is the most noticeable trait. Its bubble-like curvature allows light to be spread out with more rapidity to create a larger image in a shorter distance. It works very well with tensioned materials. However, the uneven “flatness” of standard projector screens will create image distortion, so a flat-tensioned material is a must. Also “ST” projectors create their images with “off axis” light. “Off axis” means that the



light is not really hitting the screen material head-on but more from the side. Because ALR materials filter out off-axis light, they do not work well with short throw projectors either.

- Strength is its ability to work well at giving a big picture in close confines.
- Weaknesses are its inability to work with anything but

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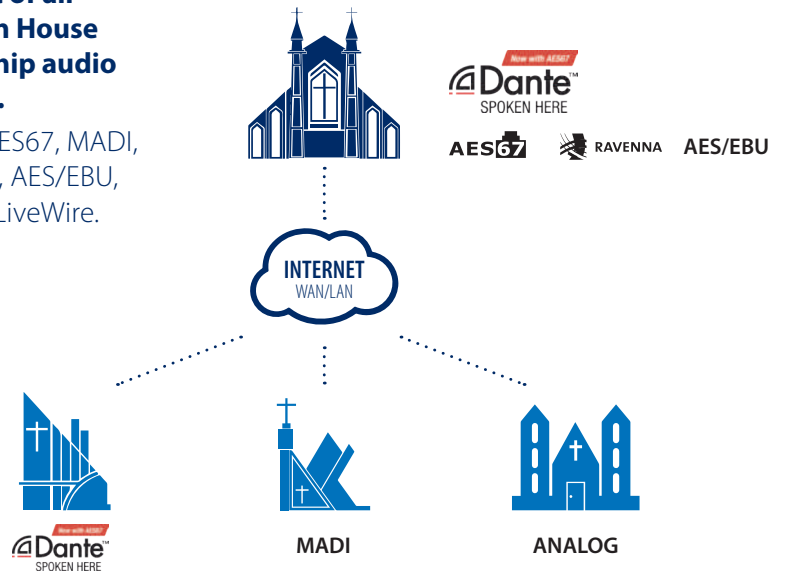
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a perfectly flat projection surface and that it is not at all compatible with any type of ALR materials.

Ultra-Short Throw Projectors

Note: In order to create a 100" / 254cm (16:9) image will typically require about 3-20 inches (8-50cm) of throw distance

UST projectors are the latest concept in projection versatility. They are designed to be positioned flush with the screen and still create a huge

image. Pull it back a few inches and the picture nearly doubles in size. These projectors typically have a reflector lens to spread out its light signal over a minimal distance. Although they can be more costly than other projector types, they are a favorite with teachers and professional trainers for obvious reasons. Because shadowing is minimal, they are typically used in interactive whiteboard displays as there is no possibility of foot traffic passing between the projector and screen.

This is also the main reason why UST projectors are gaining in popularity with residential applications as well. Like the short throw projectors, these screens are only compatible with perfectly flat projector surfaces. Although they don't work with the standard ALR materials, there is a new CLR® (Ceiling light rejecting) or ALR-UHD materials that allow them to give a bright, clear image even when there are high levels of room lighting that will wash out the image on a white screen material.

- Strength is its ability to work well at giving a big picture in close confines. Flush design eliminates the shadow problem making it ideal for training or home theater applications. CLR projection materials are available for them.
- Weaknesses are its inability to work with anything but a perfectly flat projection surface. Limited availability of larger CLR material sizes (for now).

Conclusion

In summary, a standard projector goes with just about everything. They accommodate large and small venues using a variety of material options. Short throw projectors require a tensioned-flat surface but make installation a lot more convenient for training rooms and meeting spaces. One strong caveat is that further attention should be paid to having a compatible screen material. For wide open spaces, the traditional design is best. A short throw is better for training environments; while a UST projector is the best bet for a tight spot. **T**

Dave Rodgers, Marketing Manager for Elite Screens Inc. He has over 20 years of experience in the AV and wireless communications industries. He has made numerous television, radio and editorial appearances providing installers and do-it-yourselfers with easy solutions toward creating larger-than-life big screen applications.

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Using In-Ear Monitors

BY JOHN CHEVALIER

With so many worship teams moving to in-ear monitors (IEM's) the key to success is knowing why. The benefits do outweigh the challenges. Here are a few thoughts that will help you make the transition successful.

UNDERSTAND THE BENEFITS

For the team on the platform, IEM's will give you an accurate rendition of your sound. Vocalists can stray off pitch when only hearing ambient sound; however, when you isolate their voice, they will hear themselves much better.

For the audio team this simplifies mixing for the congregation. Using IEM's makes it possible to lower, if not totally eliminate, stage volume. This gives your audio tech nothing but the front-of-house to worry about. This is a huge benefit especially if you are in a small building.

CHOOSE THE RIGHT SYSTEM

I am a huge proponent of personal on-stage mixers. These give the musician individual control over what they hear. Personal onstage mixers allow the musician to set their own mix and eliminates the need to ask for more or less of something in the monitor mix.

If you cannot move to personal mixers you need to have

a separate monitor-mixing console, either on the platform or off to the side. Trying to mix IEM's with your mixing consoles aux-sends will only create problems. If you ever want your musicians to put those earbuds in again, you have to give them a good first-time experience.

CHOOSE THE RIGHT EARPIECE

Choose your earpiece the same way you would choose monitor speakers, which is by asking two questions: "What sounds best?" and "What can I afford?" There are a wide range of features and you need to take the time and do the research on them.

Seek out both knowledgeable salespeople and several teams that have been using in-ears. This will help you get a list of different earpieces that people like.

If your church/team can afford custom earmolds, that's great, however, the market has changed quite a bit and there are a number of quality earpieces that are affordable. Do

not use the earbuds that came with your phone since they don't provide enough isolation. Start with a set of professional level IEM's that have the rubber or foam ends. Your goal is to have good quality and to seal out external sound.

DEALING WITH ISOLATION

Worship musicians need to be able to hear what is going on in the room, so your monitor mixer has to allow for at least one ambient room mic. Besides being imperative for the worship leader, this will ease the transition for those who are new to the whole in-ear experience.

The best way to accomplish this is to get a couple of condenser mics and place them close to the platform so that they duplicate what the team would naturally hear. Hanging them in the room will have them picking the Front-of-House mix and will only add

to the confusion. Make sure that these mics are on all the time so that when the musicians put in their earbuds, they never feel totally isolated.

SOME THINGS TO CONSIDER

Understand what your musicians need:

If the volume is not right your musicians will have the tendency to sing or play too loud or too soft.

Help instrumentalists get a realistic tone

This is where having the right effect processors and speaker emulators come in. Once you take the time to dial in each individual voice or instrument, any musician can be happy with in-ears.

Work to get the "live music feel"

Especially for your bassist and drummer. It's hard to get into a groove when your bass sounds like a banjo and the kick drum sounds like you're

knocking on the front door! For the bottom end, "feel" is really important. ButtKicker™ makes a couple of products that reproduce the feel of bass for both the bassist and the drummer via a module that bolts to the drums throne and a platform that the bassist stands on.

Free the worship leader from wires

This is not an issue if the worship leader is on a mic stand, but if he is totally wireless, consider getting a wireless monitor system. Yes, that means one more body pack, but if they are used to being free this gets the job done.

IN CONCLUSION

As it is with any new technology, there is a learning curve and some purchases will need to be made. However, if you take the time in preparation, the technology will work for you and not vice-versa. ■



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The Do's and Don'ts of RF Attenuation

BY BRIDGET HARRINGTON

As you know, what most refer to as “wireless mics” are actually wireless hand-held transmitters. A transmitter is any device that sends out a wireless signal – electromagnetic waves via a transmitting antenna – to another device that interprets those waves, called a receiver.

Attenuation is a reduction in strength of a radio frequency (RF) signal during transmission and is measured in decibels

(dB). Material surrounding radio signals is referred to as the “medium” through which the signal travels. Attenuation measurement in decibels is ten times the input signal power divided by the signal power at an output of a specified medium. For radio frequencies, attenuation refers to the way in which the strength of waves lessens while going through open air, walls, the human body, and other features present in the environment.

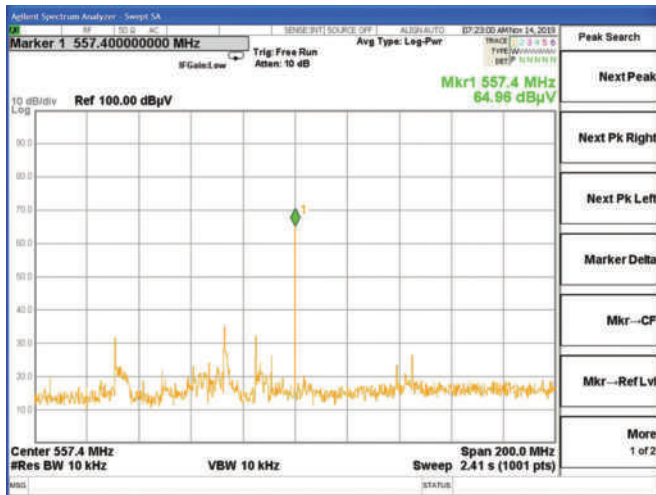
How should I be holding the transmitter and why?

The transmitting antenna of an HH, HHa or DHu is located at the bottom of the transmitter.

Antennas like ones used in the handheld transmitters don't contain boosters (like you see in cell phones or radio towers) that can amplify a signal. They passively radiate, assuming that they have a clear field to do so. Holding the transmitter by placing

your hand at the bottom of the mic will greatly reduce the RF level that is radiating out. Your hand, being a dense medium, prevents the waves from radiating adequately to reach the receiver.

Graph one shows the RF level of an HH transmitter at a given distance from the antenna, but connected to an RF spectrum analyzer, which measures output in dBμV, or decibels relative to one microvolt. It's a simple way to measure differences, which can be small, in

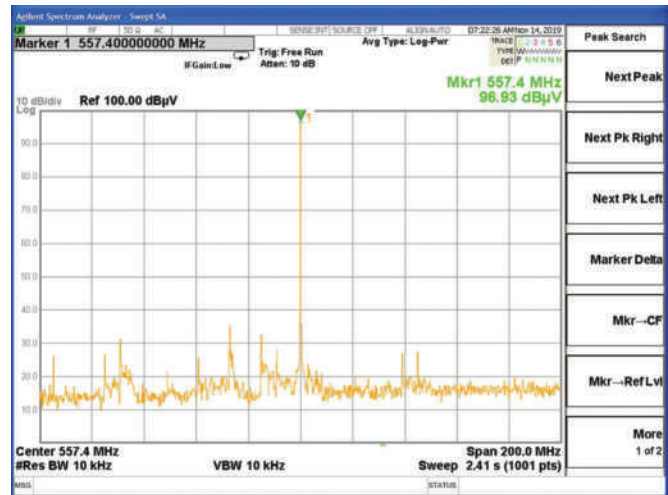


Incorrect

signal output. The antenna is covered and you can see that the level measures 70.0 dBμV.


Compare to the second graph, where the transmitter is held in such a way that the antenna is not obscured. A

position with your hand in the middle of the mic, closer to the capsule, is the correct way to position your hand. Holding your hand-held transmitter incorrectly can result in a loss of 30 dB or more, which will definitely



Correct

affect the operating range of the system. This can be avoided by simply holding the transmitter in a way that does not obscure the antenna. Don't forget to tell your pastor, CEO, singer or anyone else about the correct

way to talk or sing into a handheld transmitter! 

Bridget Harrington is a Marketing Specialist at Lectrosionics, Inc.



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Kingdom Legacy Live at Oak Cliff Bible Fellowship

BY KENNY MASON

Held at Oak Cliff Bible Fellowship in Dallas, Texas, Kingdom Legacy Live celebrated the work of Dr. Tony Evans, the first African American to release a complete Study Bible and Commentary in an historic evening filled with musical artists and special guest speakers. Dr. Evans' son Anthony Evans, the founder of Sherman James Productions, was tasked with creating an unforgettable night.

Wanting to implement a more intimate experience within the church's large sanctuary, production manager and show designer Anthony Martinez worked with myself and the team at Nashville-based Elite Multimedia Productions to supply the live event lighting and video design that would transform Oak Cliff for this special event.

The church had just gone through a large renovation where they opened up the stage and painted all the walls white in order to create different ways to light and texturize the space. However, during design discussions, the team at Sherman James Productions wanted to create more of a



theater black box feel where we could bring everything in a little closer, but still have a beautiful backdrop for the musical artist performances.

Elite Multimedia was brought in to assist with the production and technical support and deliver the expertise and technology required. We knew going in that we would have to work around the church's production elements already in place without interfering with their midweek service. Since the church had recently undergone a renovation to update their production technology, we tried to find a way to incorporate all the physical items now in the room into the vision for the design and make it happen.

Moving forward, we began building the production rig that would not only meet all the specified guidelines but could also be implemented

quickly for this one-night event. We were challenged to work around the production schedule of the church's weekly services, so we knew communication would be key. We have worked with Sherman James Productions on a couple of tours, so partnering once again was seamless; and solid lines of communication were quickly established.

By migrating production elements from a previous tour and then increasing the lighting and video gear for the scale needed, an alcove was built for the musical guests and to provide a separation between either side of the stage. With a build-up of LED video elements that started on the ground then tiered up and out, we filled the space in front of the large choir loft, which was a focal point that led up to the larger video screen. We

LIGHTING

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- 1 – GrandMA2 Lite
- 1 – MA Lighting 4 Port Node
- 4 – Elation Opto Branch 8way DMX Splitter
- 12 – Elation Platinum 7 Wash
- 12 – Elation Artiste DaVinci
- 36 – Elation ACL360i
- 24 – Chauvet COLORdash Par-Hex 7
- 14 – Chauvet COLORado Batten 72 Tour
- 1 – TMB RPD 208 ProPower Socopex 60 way Distro
- 2 – HazeBase Base Hazer Pro
- 4 – 10' Tyler GT Truss Towers

VIDEO

- 5 – Riser Facias consisting of (50) PixelFLEX FLEXtour 2.8mm tiles
- 5 – Columns consisting of (72) PixelFLEX FLEXtour 2.8mm tiles
- 8 – 10' 12"x12" Black Tyler Truss
- 4 – Nova MCTRL4K 4K Controller
- 3 – Decimator MD-Cross V2 HDMI-SDI Converter
- 1 – TMB RPD 208 ProPower 24 way Distro

AUDIO

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- 4 – Avid Venue Stage 48 I/O Unit
- 2 – 56 Channel Passive 2x Spit
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- 5 – Shure KSM9 Wireless Capsule
- 1 – Shure Beta52A
- 6 – Shure SM57
- 5 – Shure SM137
- 4 – Shure KSM137
- 2 – Shure SM27
- 2 – Shure VP82
- 10 – Shure SM58
- 1 – Audix D6
- 3 – Sennheiser e604
- 1 – Sennheiser MD 412
- 2 – Shure KSM 32
- 2 – Shure Beta 91
- 12 – Shure PSM1000 IEM Mixers
- 8 – EV PX 1122M Monitor Wedges/EV TG5 2000w Amps/EV TG7 3500w Amps
- 1 – Drum Sub -EV Plasma P2 Powered 18" Sub
- 1 – Clear-Com FreeSpeak II Wireless Com system
- 1 – Production Intercom 2 Channel Master Station MS-200
- 6 – Production Intercom 1-Channel Beltpack
- 2 – Production Intercom 2-Channel Beltpack
- 4 – Production Intercom Blazon
- 6 – Production Intercom Double Muff Headset
- 6 – Production Intercom Single Muff Headset
- 3 – Production Intercom Phone

also implemented alternating video and lighting towers, along with risers in the center that were also wrapped in LED video.

In a busy production schedule, the pre-planning and preparation that goes on behind the scenes are influential factors of an events success. Experienced in how to make sure a rig is production-ready when it arrives, we were able to quickly have the production up and ready for showtime. We did a lot of pre-rigging at our facility in Nashville, so all the lighting towers were on GT Truss and everything was pre-populated with all the cable looms. We also did a fair amount of CAD work at the shop, so we knew all our video dimensions with all the right lengths. Once we were onsite at the church, it really became about drag-and-drop.

In a night filled with many of Gospel music's biggest names, we had a wide array of artists, so the lighting rig had a diverse mix of fixtures. This allowed us to go from a high energy, hip-hop feel into softer, more intimate moments, and then the video content mirrored that array throughout the evening. It was extremely energetic with a passionate congregation and musical artists that really drive an audience.

With all the programming and building of video content Elite Multimedia had done, many of the church technical staff commented we had filled the space perfectly and wanted the gear to stay, which was high praise. Working with Sherman James Productions to help transform the church for Kingdom Legacy Live provided us the opportunity to translate the overall project design on paper into an exciting and dynamic worship event, and everyone loved the end result. 📺

Kenny Mason is a Production Manager at Elite Multimedia



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Q&A with Anthony Martinez of Anthony Martinez Production Services

TFWM: Tell us about the Kingdom Legacy Live event, what made it special from a technical perspective.

Anthony: Kingdom Legacy Live was a special event celebrating the achievements and legacy of Dr. Tony Evans. The event was held at Dr. Evans home church, Oak Cliff Bible Fellowship (OCBF). The show flowed like an awards show where people would address the audience about Dr. Evans achievements, including multiple award-winning artists who performed throughout the night. The goal of Sherman James Productions from a technical standpoint was to enhance the performances of each of the vastly diverse artists so it would not feel like a typical Sunday worship service. OCBF recently went through a large audio/visual renovation and it was exciting to utilize their new systems. To set the event apart, we brought in additional elements that would expand on what was there and create an immersive environment.

How was it bringing in outside production gear to a newly renovated church? What challenges did you face working with OCBF and their production staff?

Anthony: For the past 15 years, I have been working with Anthony Evans (and now Sherman James Productions) in bringing in outside production for tours, conferences, and special events, etc. A lot of times a church technical team may be hesitant having outside gear come into their space. OCBF was very accommodating and helpful in achieving the Sherman James Production goal for the look and feel of the event. One of my main responsibilities was making sure that the OCBF technical and facilities team were completely in the loop on our plan. The challenge was making the staff feel comfortable and included. I wanted them to know once the Kingdom Legacy Live event was loaded out, their Sunday services would continue smoothly. I feel it's important for churches to always explore what they could be doing differently from a technical standpoint and I'm glad we were able to offer a different atmosphere from a typical Sunday service.

With a successful event where everything went smoothly, what do you attribute the success to?

Anthony: 100% the crew. Sherman James Productions and I were very blessed to have exactly who I needed in the right areas for this event. As Production Manager, I think it's important to discover a person's strengths and make sure they are in the best position to succeed. I'm always evaluating personnel because I want them to love what they are doing and feel accomplished. In my years working with churches, I often run into individuals who are struggling to maintain interest in being a part of the technical team. Sometimes a little shift in the approach to what they are doing may be just what's needed to re-engage them. Sherman James Productions and I owe the success of Kingdom Legacy Live to the crew and their trust in me when challenges occurred. **T**



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CRYSTAL SCREENS ALR Projection Screen Paint

BY VICTOR SAMUELS



Mt. Tahoma Seventh-day Adventist Church in Tacoma, WA was in dire need of a solution for our washed-out projection screens.

Originally using matte white projection screen paint and custom wood trim frames, we saved a lot of money instead of buying a pair of screens, but the overhead lighting and under-powered projectors had led us to the point where it was time to look at a different solution.

My natural tendency was to simply purchase brighter projectors to help us see the image better. As I was putting together a spreadsheet of what I thought we needed to

present to our church board, I happened to have a phone call with Tim Adams, the principal of Timato Systems, a system integrator and consultant that we have worked with before. He asked a very direct question, “How do you project black onto a white surface?”

I couldn’t answer that question and he proceeded to tell me that most of the time, people think they just need a brighter projector and that will provide a better image. He explained that what we perceive as a great image is largely due to contrast in the image, which provides deep, saturated colors and depth. You cannot get this with white screens because blacks will always come out

as some shade of grey. Tim has spent the last few years evaluating different ambient-light rejecting screen technologies and solutions and thought he might have one that would work for us and remain under budget, and put together a bid that utilized a new ALR screen paint from a company called Crystal Edge Technology. Given that he is a professional and would handle the installation, I chose to go with his bid and we proceeded.

When Tim came to do the install, he simply had to paint the screen with the new ALR paint. The hardest part was that our screens are about 14’ off the floor, so he had to use a ladder and extension pole, but

there was nothing special about the application, which means anyone can use this to revitalize their current screens and achieve similar results to ours.

We also upgraded our projectors from 4500 lumens to 6000 lumen laser projectors, which allows us to have little ongoing maintenance and no lamp changes for at least 10 years, based on our average usage. The reason we chose to go with a slightly brighter projector was because Tim explained to us that with any ALR technology there will be a drop in the whites in the projected images, so we followed his advice. However, I can tell you from my experience with this paint that the benefits



of getting such a huge increase in contrast is worth sacrificing some of the brightest whites. I remember thinking when I saw the updated screens for the first time, “That is a really clean picture and the screens look like huge TVs!”

The awesome thing is that now we have two extra projectors that we can re-purpose in another part of our building—they are not junk and that saves us from having to purchase new projectors for our classroom or fellowship hall in the future.

From what I understand, the paint has spent years in development and has been designed as a way to save

people money and provide more flexibility in creating custom screens and aspect ratios.

For churches of all sizes, this paint offers significant savings and an alternative to large screen TVs and LED video walls. There are so many reasons this product is a good investment for churches. For example, with a TV, you’re stuck with the size the TV comes in; with this paint, you can not only spend less money, but you can have a much larger screen for the money. For large churches that are looking at LED video walls, there are many hidden pitfalls to that technology. Things like

color and brightness matching, ensuring all LEDs in the panels come from the same batch, ongoing maintenance, structural reinforcement, powering the screens, the processors required to feed signal, etc. On top of all that, you have to turn the brightness down to well under 50% for indoor use so there’s always the question of whether you are really experiencing all the value you paid for.

For a fraction of the cost, this paint can be used on wood, plastic, glass, drywall and virtually any surface (including styrofoam!) to allow

you to create a projection surface with high contrast, which opens the door to a variety of different ways you can really get creative with your worship presentations. This means you don’t even need an actual screen, you can build your own or paint directly onto your wall, which is what we did. You can even use this to paint with retractable manual or electric screens, because the paint won’t crack or peel.

This really is incredible stuff and while I am completely sold on it for just about any application,, you still need to make that you are properly calculating for screen size, throw distance, aspect ratio, etc., to make sure your expectations will be met.

If you’re tired of washed out projection screens and want to see if this paint might be a viable option for you, I would strongly urge you to check out Crystal Edge Technology and

perhaps drop Tim a line to see if you can experience the projected image the way it was meant to be.

Our church members could not be happier with the results of this upgrade, as we can finally see the images and text being projected onto our screens without it being washed out or affected by the downlight right above them. We’ve had at least a couple members ask if we put in big TVs because the images are just that good! I simply can’t believe how well this paint technology improves the sharpness and the contrast quality of the projection. **T**

Victor Samuels serves as the Media Director at Mt Tahoma SDA Church in Tacoma, WA. He has been serving for 15 years to support the Audio/ Visual, Presentation and Livestreams at Mt Tahoma.



VICTOR’S REPORT

FLEXIBILITY	★★★★★
SCALABILITY	★★★★★
EASE OF USE	★★★★★
COST	★★★★★
OVERALL VALUE	★★★★★

STOMP Bluetooth® 4.0

Page Turner Pedal & App Controller

by CODA Music Technologies

BY KENT TINSMAN

As the Worship Leader for NorthRock Church at our Jackson, Michigan location, I have contributed my time and talents to a few large church worship bands for over 20 years. NorthRock Church started four years ago and has grown into two campus locations with a third location launching this year. Our church model really proves that church startups don't have to cost a fortune. I chose to write this review because I believe that the technology and workflow we have implemented centered around the STOMP pedal can help other churches run a much tighter worship set.

I reviewed many page turning products prior to purchasing one but chose STOMP by Coda because of its rugged construction and small footprint. If you are a guitarist, it can be plugged in and placed right on your pedalboard, which is pretty convenient. It can be powered by on a 9V battery if you don't have an outlet and also has a convenient USB port for charging your phone or iPad.

My initial use of the STOMP pedal was pretty basic. I started creating some power points with lyrics, chords, and special notes to visually help our band tighten up the songs. We have a large confidence stage monitor that we

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- **100% Made in America**



can all visually follow along with. The entire song is a series of slides that are advanced using the STOMP pedal. This has eliminated music stands on stage and the minor hiccups

caused from looking up and down on a paper to go back to that chorus that was already played. I would first listen to a song from a worship leader perspective and then add notes to the PowerPoint for anything "unique" that I should be listening for during practice. It's easy to call out those notes/cues verbally but having these visual cues while playing really tightens up the entire band. Notes that I find extremely



helpful are things like breaks, builds, when the bass would come in/drop out, drum solos, guitar solos, acapella, etc.

I am still using this PowerPoint method with a stage monitor and have also recently discovered an awesome process that really adds power to our workflow. STOMP is compatible with ProPresenter and that program has a feature called stage display, which offers the ability to add a PDF attachment to each lyric slide. Discovering this was a light bulb moment for me and I started creating power point slide chord charts to exactly match the lyric slides. Each power point slide chord chart is saved as a PDF, then attached to the lyric slide, and the stage display and overhead monitors will always run in sync. You will never have that moment of wondering why the lyrics weren't right last Sunday. I have seen many YouTube videos and articles explaining how to add pages/sheets of chord charts to slides. I also read recommendations of typing chords in the notes field, but I have not seen anybody mention this PDF slide method before, and it's a game changer. Not only do I have the ability to keep the band in sync using the stage display, but I also have the ability to control the ProPresenter slides using my STOMP and feeling confident about what is on the screen without looking behind me. An entire weekend could be run smoothly using the STOMP pedal without needing a person to advance slides. If you are a smaller church with limited volunteers or staff then the STOMP by Coda is definitely a great addition to your tech arsenal.

Thank you Coda for building a great product that allows us to do so much. We will never go back to paper chord charts! **T**

Kent Tinsman is the Worship Leader at NorthRock Church

KENT'S REPORT

FUNCTIONALITY	★★★★★
DURABILITY	★★★★★
EASE OF USE	★★★★★
COST	★★★★★
OVERALL VALUE	★★★★★

CODA MUSIC TECHNOLOGIES

Repeat switch: sends repeated signal to scroll quickly through setlists or long songs

LED status indicator with battery life indication

4 different modes allow for compatibility with 100's of different apps

Power button

Tactile, soft touch foot switches ensure confident page turning and app control without a loud "click" like standard guitar pedals

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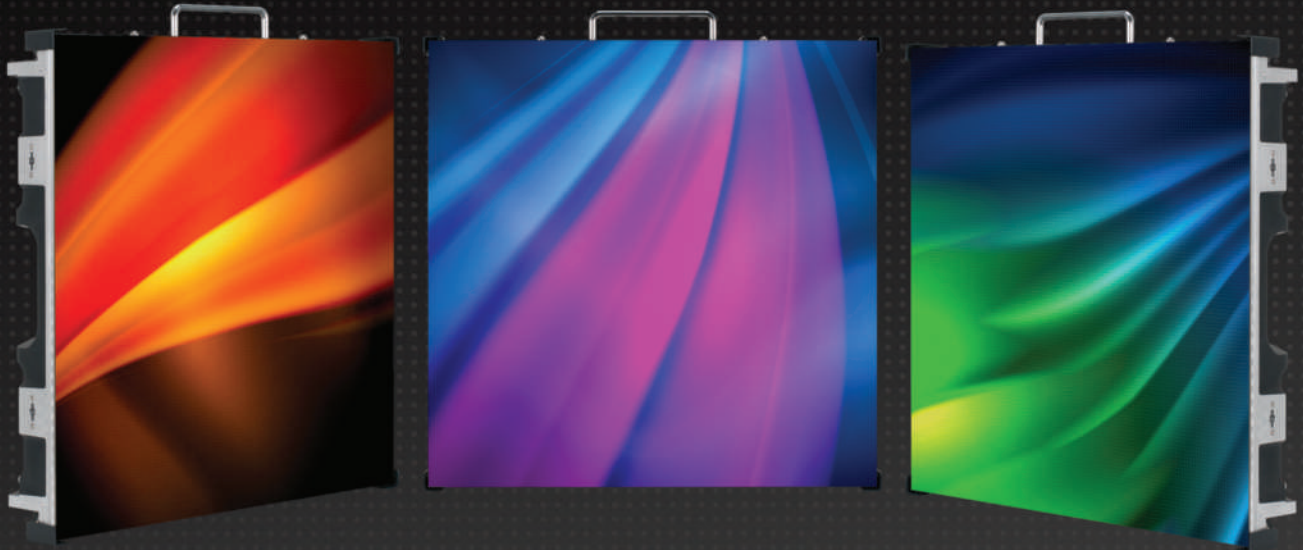
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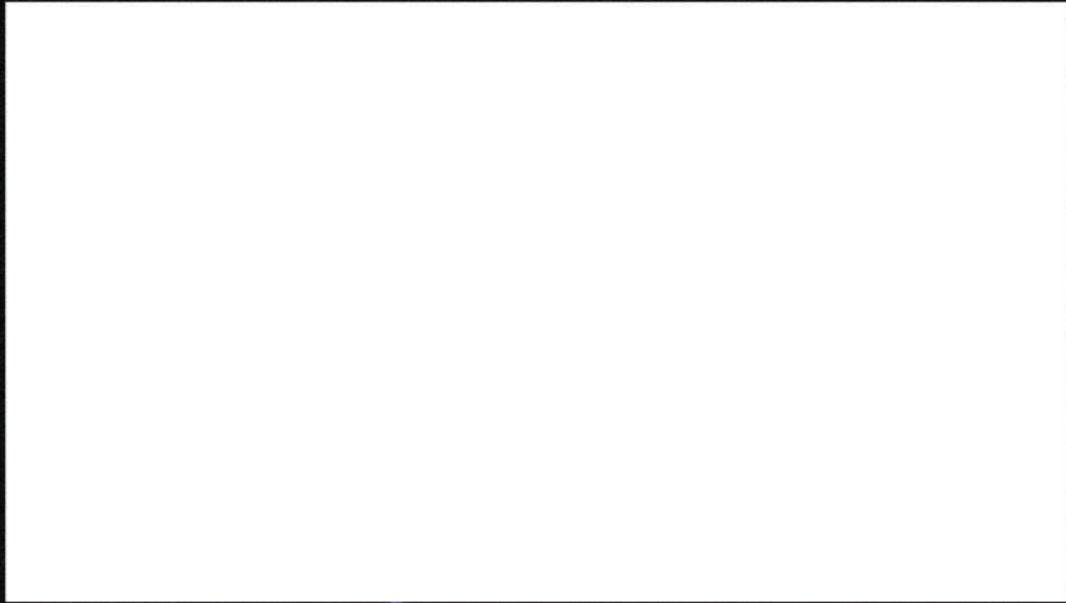
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How to Set Up Cameras FAST with HDBaseT

Whether you are doing a multi-camera set up, system install, or setting up at a venue, saving time and saving money are always great things for your business. Using a one cable solution of HDBaseT allows you to set up your cameras FAST and EASY. In the above, Datavideo shows you how you can easily connect a PTC-140TH camera to a switcher and controller using HDBaseT technology.



video courtesy of Datavideo



Audio Engineer Stephen Bailey Deploys Waves SuperRack and LV1 for Broadcast at Passion 2020 Conference

Passion's lead audio engineer Stephen Bailey recently incorporated Waves eMotion LV1 Live Mixer and Waves SuperRack for the Passion 2020 Conference in Atlanta, an annual gathering of young adults between the ages of 18–25, which hosted over 65,000 attendees at the Mercedes Ben Stadium in Atlanta.

Bailey's setup included a Waves eMotion LV1 Live Mixer, and a deployment of 10 Waves SoundGrid® recording systems for the three DiGiCo networks on site.

Bailey comments, "The DiGiCo systems were deployed in a festival

configuration, with two artist loops and a production loop. Our primary recording system used a DiGiGrid MGR per each artist loop and a DiGiGrid MGB for the production loop, pulling audio and clock off the MADI Main outputs on each DiGiCo SD rack. Each DiGiGrid unit then hit its own NETGEAR ProSafe M4100-D12G 12-port Switch, which got the SoundGrid network onto single-mode fiber cable, and made its way about 100m outside, to one of the TV trucks where an engineer was managing our primary recording computers. The fiber routes were bookended by the same NETGEAR switches in the truck, where

our engineer had three MacBook Pros running a Waves SuperRack SoundGrid host application to manage these networks. He had a DiGiGrid D on each network locally, to input monitor the audio from Waves' Tracks Live DAW over headphones. We were also able to throw together rough mixes and output this from the DiGiGrid D to the truck speakers from Tracks Live, while recording in real time to make sure that what we were recording was clean, and also so the producers from the record

PHOTO: THE BROADCAST AUDIO SETUP AT THE PASSION 2020 CONFERENCE IN ATLANTA, FEATURING A WAVES EMOTION LV1 LIVE MIXER



Embedded Video

label could determine if any changes from stage were needed. Our primary recording engineer was also archiving the recorded files and uploading them to Dropbox with a dedicated uplink computer, so after each session of the conference our film and other creative teams could immediately access and pull down audio to use for various exported content without having to ask our audio team.”

Bailey adds, “Our secondary recording system was located under stage next to the DiGiCo SD racks. Nearly being a carbon copy of the primary recording system (minus the fiber run and extra switches), this system pulled audio off of the SD racks via the MADI Split Mains. With having SD12 consoles for Broadcast on each loop, each having two Waves DMI cards, we were able to send copy audio routes from the SD racks out of those, and straight into a MacBook Pro at each desk recording into Waves Tracks Live for a very simple, cost effective

third redundancy.”

He adds, “We also used a Waves eMotion LV1 Live Mixer to manage recording of audience mics around the stadium, via three DiGiGrid IOX units (placed house left, house right and at FOH). These units were connected to the truck on the same tac-fiber as the primary recording system, where the LV1 engineer managed, mixed and recorded these mics. ISOs of these audience mics were returned back into the DiGiCo SD racks via analog audio out of a pair of DSPRO StageGrid 4000 SoundGrid stageboxes for recording purposes, and a stereo mix of the audience mics was sent to the broadcast console on the production loop, where it was blended in with the broadcast program audio. What’s great about the eMotion LV1 Mixer are its small footprint, processing power and flexibility, and most significant, the ease of tying all these systems together. “

As far as must-have plugins in this production, Bailey comments, “The

Waves F6 Floating-Band Dynamic EQ is a great-sounding EQ with powerful dynamic capabilities and a super useful RTA window; Waves’ Tune Real-Time is invaluable for vocals that live forever in a broadcast mix; the C6 Multiband Compressor is a mainstay for tidying up and smoothing out any unruly input, and the CLA MixHub has been bringing out guitars for me in big ways... its EQ section is amazingly musical and smooth. The Infected Mushroom Pusher is an odd one that I use quite a lot... the magic setting + stereo imaging is beautiful.”

Bailey remarks, on using SuperRack, “The workflow of SuperRack is highly appealing to broadcast mixing. The ability to have multiple plugin GUIs open simultaneously and recallable is great, especially for vocal chains and output processing. With SuperRack being based on SoundGrid, it opens the door to some really powerful workflows outside of the application itself, such as live drum sampling.” ■

Introducing...

Church Facilities Conference & Expo




Technologies for Worship Magazine is excited to be part of the new Church Facilities Expo, a new conference and expo serving the House of Worship market being held in Dallas, TX from September 29 – October 1, 2020. Well positioned to educate and connect those who produce church services with those seeking to provide a better experience to their community, the Church Facilities Conference & Expo will bring together 2,000+ production and facilities staff, pastors and influential volunteers to build relationships and enhance knowledge between 175+ manufacturers, service providers and those who create influential and meaningful experiences for their communities each Sunday.

- To learn more about the show, visit the website at www.churchfacilitiesexpo.com
- Registration opens in May, and you can save money by registering early: <https://churchfacilitiesexpo.com/registration/>

Church Facilities Conference & Expo will also be launching a newsletter on April 23, 2020. This original newsletter will focus on our community with original features, articles, industry news and some partnership articles from other publishers. Article topics will coincide with conference tracks in education: Production & Technology, Facilities, Leadership & Management.

As an added bonus, you'll receive an additional case study white paper in mid-April.

- Subscribe now so you don't miss an issue: <https://churchfacilitiesexpo.us6.list-manage.com/subscribe?u=0273d534fc1a1870248ba1a23&id=2d4c56b936>
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