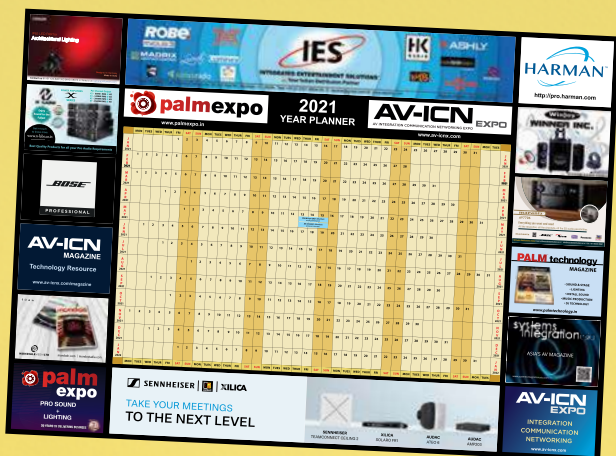
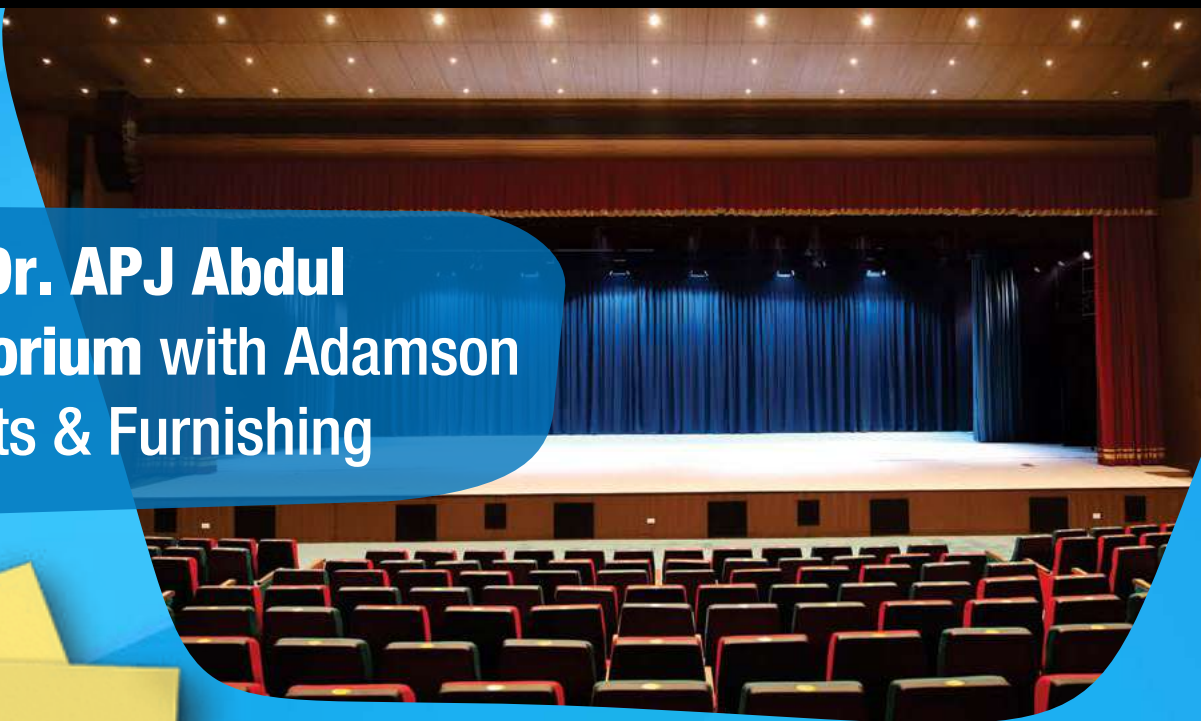


Effectron Reinforces Dr. APJ Abdul Kalam College Auditorium with Adamson Sound, Effectron Lights & Furnishing

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EDUCATION
SERIES

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Immersive Technology Theatre

PALM Expo 2021; Emerging as a Catalyst

While we get cracking on to beginning 2021 and look back at the treacherous year gone by, the shine is evidently missing from the sound + stage. Over the years we have seen the global pro audio and lighting industry make giant strides. In India, the last few years had indeed been redeeming for the big stage which boasted of real 'live acts' which included *U2: The Joshua Tour and the OnePlus Music Festival in 2019 and Justin Bieber, UB 40, Dream Theatre and Chainsmokers* before that. The dream run continued until the dreaded "C" word reared its head. 2020 has unpredictably gone on to be one of the most uneventful (pun intended) year for the industry. An industry which was projected to achieve Rs 12,200 crores by 2022, incurred losses worth Rs 40,000 crores in the first quarter of 2020 itself, and the numbers have only risen since then.

While the complete industry came to a standstill overnight, disrupting the entire supply chain, the gradual 'unlock' process which has allowed more social, entertainment, cultural, religious and political events and weddings to take place in a regulated manner has brought at least some respite - between 10 and 20 percent, a PALM survey reveals. Nevertheless the industry is still apprehensive as all events have been forced to scale

down in size, invariably at the cost of sound and lighting. The days of live stage concerts drawing in thousands of fans and the days of the big fat Indian weddings seem palpably numbered. The heat and light of the big lights and the sound from the big boxes is gone and the entire culture has shifted from live to virtual (which too cannot be a permanent solution). For the live events industry, painful as it may sound, going back to where we were, pre-Covid, is no longer an option for a long time to come.

Nonetheless, let's Chin up and measure the change in the industry in a month from now.

PALM 2021 is up ahead. Come May and all roads lead to the Bombay Exhibition Centre in Mumbai from **May 13 – May 15, 2021**.

It's time that we as an industry go by ground reality and reinvent. The PALM AV-ICN expo has a very important part to play in this and it's time for the industry to use this platform to put the industry into active gear. Essentially PALM AV-ICN is playing catalyst role in resurgence of the industry. In 2021, PALM also has a lot

of initiatives for "Make in India" which is crucial to strengthen prosound + light sector. The industry shall come together at the show. It is of paramount importance and relevance that the industry converges on a central anchor platform like PALM AV-ICN. Converging on an anchor platform in PALM AV-ICN will give us a strong voice and clear path of progress.

For obvious reasons the theme for the **Nov-Dec** issue which is usually **Big Stage + DJ** has endured an applied change this year, focusing more on install sound and theatres and auditoriums as is evident in the content for this issue. Hope you find some valuable information in there.

A big Thank You to our readers, loyal advertisers and the industry as a whole, for keeping in touch with the **PT** team and providing us with invaluable market insights all through this difficult year! We hope the New Year starts off on a good note for all of us.

In our year-opening **Jan-Feb** issue, we will be featuring the **Top 50 products** and technologies of 2020. Send in your submissions real quick for consideration to mporwal@palmexpo.in or srai@palmexpo.in

Till then wishing you all a Happy and Prosperous New Year!

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PRESONUS INTRODUCES CDL12P CONSTANT-DIRECTIVITY LOUDSPEAKER

PreSonus has introduced the new CDL12P full-range, constant-directivity, powered sound-reinforcement loudspeaker that combines the best attributes of point source and line array technology to provide the flexibility demanded by modern sound-reinforcement applications. Its constant-directivity design enables it to radiate a highly focused pattern with consistent SPL throughout the frequency-response range, both on- and off-axis.

The CDL12P is portable and can be used alone, in tandem with a subwoofer, or in an array, making it a great choice for touring bands and mobile DJs, as well as for fixed installs in small and midsize venues that don't need a networkable loudspeaker.

Each CDL12P consists of eight 2-inch drivers aligned in a segmented circular-arc high-frequency array centered in front of a 12-inch woofer. The outputs of the low-frequency

driver and the high-frequency array travel on the same acoustic axis, as with a coaxial studio monitor. A low, 420 Hz crossover frequency minimizes comb filtering. Regardless of how many CDL12Ps are stacked (up to six total), users get focused sound with consistent SPL coverage both on- and off-axis. Each CDL12P delivers 120° horizontal by 15° vertical dispersion, so six enclosures rigged together form a 120° x 90° coverage pattern.

The CDL12P's integrated 500x500W Class D power amplifier features onboard DSP presets to facilitate and simplify arrayed configurations. The integrated DSP offers a high-pass filter; a limiter; tuning for use with PreSonus CDL18s, AIR18s, and ULT18 subwoofers; and controls for the number of enclosures used. A dual-angle pole mount is provided, supporting the use of one or two enclosures when pole-mounted on a tripod stand, or atop the companion CDL18s, ULT18, or AIR18s subwoofer, allowing the system to adapt to varying



audience sizes. Heavy-duty aluminum rigging with integrated pin-loaded hardware rated for a 10:1 load ensures a safe solution for flown installations.

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MEYER SOUND ANNOUNCES MARKETING LEADERSHIP AND EXECUTIVE PROMOTIONS

Meyer Sound has announced the promotion of four key staff, assigning each a broader scope of responsibilities to streamline internal communications, increase

and education on a worldwide basis. Boot joined Meyer Sound in 2015 and has served in high-level sales, marketing and technology development roles, most recently as Global Brand Manager.

post of Vice President of R&D, assuming coordinated leadership of all Meyer Sound R&D teams working on all technology platforms, including loudspeakers as well as digital systems. His prior

new product development.

"At Meyer Sound we anticipate that pent-up demand will lead to an industry rebound in the not-too-distant future, and we are developing



Tim Boot, Meyer Sound Director of Global Marketing

operational efficiencies and accelerate the timelines from product planning to R&D through product development and global marketing.

Tim Boot has been appointed Director of Global Marketing, a new position that entails overall responsibility for product management, marketing, communications



John McMahon, Meyer Sound Senior Vice President

John McMahon has been promoted to Senior Vice President. In his expanded role, McMahon assumes a full range of company-wide executive responsibilities while working closely with Meyer Sound's executive team and company founders, President and CEO John Meyer and Executive Vice President Helen Meyer.

Marc Chutczter has moved up to the



Marc Chutczter, Meyer Sound Vice President of R&D

position was Vice President of Digital Program Management.

Mike Ulrich has been appointed Meyer Sound's new Vice President of Operations, taking charge of all aspects of manufacturing, purchasing, quality control and test engineering. With Meyer Sound since 2014, Ulrich has broad experience in both engineering and



Mike Ulrich, Meyer Sound Vice President of Operations

strategies to leverage the expected growth," comments **Helen Meyer**. "These latest promotions and role realignments will position us to meet resurging demand with new technologies and ramped-up production, and always with the high level of support our customers have come to expect."

JBL PROFESSIONAL ANNOUNCES IRX115S POWERED SUBWOOFER

HARMAN Professional Solutions have announced the introduction of the **JBL IRX115S powered subwoofer**.

The JBL IRX115S powered subwoofer, the newest member of the JBL IRX Series, draws from JBL's top professional

touring technologies to deliver superior sound without the guesswork, thanks to its custom driver and amplifier designs; tuned, ported enclosure; and built-in crossover and polarity settings. It all adds up to an impressive 128 dB of

deep, powerful low-frequency coverage in a rugged, compact cabinet weighing just 65.3 pounds.

"With our IRX Series, we've drawn from 70 years of JBL innovation to design a portable P.A. that's lightweight, powerful and doesn't take a lot of work to sound great," says **Craig Lambrecht**, Director, Portable P.A.s, HARMAN Professional Solutions. "JBL IRX Series loudspeakers already deliver stunning sound in an incredibly compact footprint. By adding the IRX115S subwoofer, users can enhance their systems with room-shaking bass, without breaking anyone's budget—or back."

The IRX115S leverages more than 70 years of JBL speaker innovation to deliver superior fidelity, range and output. Inside, a powerful 15" woofer with 3" voicecoil

produces powerful bass coverage from 35 Hz to 147 Hz (-10 dB); a high-efficiency, 1,300-watt amplifier protects components while ensuring top-level acoustic performance. Selectable 80 Hz, 100 Hz and 120 Hz crossover points smooth out system response, especially when used with JBL IRX Series loudspeakers; a tuned port optimizes response and reduces woofer noise.

The IRX115S's durable MDF enclosure features a tight-gauge, reinforced honeycomb grille that offers rugged protection without compromising acoustic performance while a built-in pole mount expands system configuration options.

The IRX115S is best suited for budget-conscious musicians, DJs, presenters and fitness instructors operating in smaller environments and can count on the versatility of the JBL IRX Series portable P.A.s to deliver stunning sound with no audio engineer necessary.



Newest addition to IRX Series family of portable P.A.s extends system low-frequency response to 35 Hz

L-ACOUSTICS REVEALS COMPACT, FULL-RANGE K3 LINE SOURCE SYSTEM

L-Acoustics rounds out its industry-leading K Series with the introduction of **K3**, the manufacturer's smallest full-range enclosure, designed to deliver



The new K3 perfectly fits into the L-Acoustics K Series lineup between the K2 and Kara II

big sound for mid-size events with audiences ranging from 1,000 to 10,000. K3 provides full-range bandwidth without needing a flown companion subwoofer, and its highly efficient design reduces amplification needs. These features make K3 faster and simpler, as well as more sustainable and economical to deploy.

"K3 is ready for the events of today and tomorrow," shares L-Acoustics Executive Director of Application Design **Florent Bernard**. "Our design team created a dual-12-inch-based system with the form factor and price of a 10-inch design, without the inherent performance compromises of 10-inch loudspeakers. K3 offers long-throw, full-range performance in a compact, accessible package, tailor-made for small to mid-capacity events, and venues that are the mainstay of most sound providers. It is a 'no compromises' tool, perfectly adapted to the current event landscape and, when paired with K1 and K2, is quickly and powerfully scalable for large-capacity events."

Providing the full-range L-Acoustics contour from an enclosure that is 33% smaller than K2 and weighing only 43 kg (95 lbs), K3 is ideal for applications that require plenty of power and bandwidth from a small form factor, including mid-size tours, festivals, corporate



The fixed-install-friendly L-Acoustics K3i, shown in a white eight-enclosure array

events, religious services, and other productions. Dimensioned to keep sightlines clear, K3 integrates easily into venues with space restrictions.

The new two-way active WST enclosure possesses all of the hallmarks that have made K Series the reference in line array technology, including optimized mechanical design for reduced weight, laminar vents for powerful and linear low frequency response, and time-tested effortless rigging. K3 also features L-Acoustics Panflex technology, which provides sound designers with quick access to a choice of four horizontal directivity patterns: 70° or 110° symmetrical or 90° asymmetrical on either side. With Panflex and inter-element angles ranging from 0° to 10°, K3 line source coverage can be precisely tailored to fit any audience geometry.

Without needing a dedicated subwoofer, K3 can be used as the main system for vocal and music reinforcement in most applications, or as a complement to K1 or K2 as outfills or delays. When deployed with KS28 subwoofers, K3 excels as a compact main system for sonically demanding live events.

With the first K3 production units already shipping to customers, L-Acoustics will deliver K3i, a fixed install version, in 2021. K3i will be suited for an even broader range of applications using a distributed approach.

SENNHEISER LAUNCHES MD 445 – A NEW FLAGSHIP DYNAMIC HANDHELD VOCAL PERFORMANCE MIC

The stage is incredibly loud, with the instruments seeming to acoustically close in on the vocalist - these are challenging environments for which the new MD 445 from Sennheiser was created. The audio specialist's large-diaphragm, dynamic stage microphone combines a direct, head-on sound with a tight super-cardioid pick pattern, providing not only maximum isolation from other on-stage sound sources but also an extremely high level of feedback resistance. With the high-rejection MD 445, vocalists can effortlessly assert their presence even in the loudest of environments.

"The MD 445 is the most powerful microphone in our MD range," says **Kai Lange**, Senior Product Manager with Sennheiser. "If its sister model, the MD 435, is the beauty, the MD 445 certainly is the beast. It effortlessly cuts through loud stage sound and establishes an

audibly greater proximity to the vocals. Its direct, high-resolution sound gives vocals a totally new richness, intensity and assertiveness."

The acoustics of the MD 445 have been tailored to modern stage set-ups with B stages and runways in front of the PA. At the core of the acoustic design is a newly developed voice coil made of lightweight aluminium-copper. Its fast-transient response ensures a very detailed, nuanced and transparent sound that is complemented by rich mid-range and bass. The sound is acoustically close, intimate and open, irrespective of how loud the instrument soundscape may be.

Thanks to its high-rejection, super-cardioid pick-up pattern, the MD 445 has enormous gain before feedback. Dynamics are wide at 146 dB(A) and the microphone can handle sound pressure levels of up to 163 dB/1 kHz.

The outstanding acoustics come with a mechanical design that's built to withstand a life on tour: The MD 445 features a metal casing and has a shock-mounted capsule to protect it from structure-borne noise. A hum compensating coil protects the microphone against electromagnetic interference.

For use with Sennheiser's wireless transmitters, the capsule of the MD 445 is also available as MM 445 microphone head. Fitted with Sennheiser's standard capsule interface, the MM 445 can be used with Sennheiser wireless series ranging from the evolution



The wired, super-cardioid MD 445 vocal microphone and the MM 445 microphone head (pictured with the capsule interface) for use with Sennheiser wireless transmitters

wireless G4 and 2000 series to Digital 6000 and Digital 9000.

OUTLINE HIGHLIGHTS DURABILITY WITH L3000 AMPLIFIER

Leading European pro-audio innovators **Outline** have announced the launch of their latest design, the all-new **L3000 multi-purpose amplifier**.

The L3000 has been created to offer a compact, powerful DSP-equipped multi-channel amplifier that can be configured to drive most loudspeaker configurations. Additionally, its form factor eschews the traditional 19" rackmount format, its mechanism being housed in a super-tough, lightweight chassis using the same materials and roadworthy polyurea external coating as Outline's tour-grade loudspeakers.

Its modest dimensions make it ideal for a huge range of audio installation projects, notably those where space constraints (especially at home) make it impossible or impractical to find space for traditional amplifier racks. L3000 allows 3,000w of



Outline L3000 multi-purpose amplifier

pure audio power to be tucked away out of sight, under a bar, on a shelf, in a cupboard or anywhere that's convenient to the application...Outline has also supplied a dedicated rackmount kit that

allows one or two L3000s to be secured in standard enclosure.

Featuring two inputs and four outputs, the unit's routing and operational parameters are configured using Armonia Plus, the amplifier's management software which also offers control of input / output levels and EQ, delay, polarity, crossover filters and limiter settings. Its combination of power, onboard DSP control and flexible operation make it an extremely cost-effective option for powering virtually any installed sound system.

Like all Outline products, the L3000 is 100% designed and manufactured in Italy using only the highest quality components. Visit l3000.outline.it to find out more about true innovation.

SHURE INTRODUCES DURAPLEX: A SUBMINIATURE MICROPHONE

Across industries – from film and television production, to theatre and corporate events – audio engineers and professionals continually

search for solutions that offer exceptional durability and value. Product longevity, reliability, ruggedness, and sound quality ensure that applications don't fall short of audience expectations—no matter what the stage.



Shure DL4 DuraPlex Omnidirectional Waterproof Subminiature Microphone

Shure has unveiled **DuraPlex**, the company's new subminiature (5 mm) omnidirectional lavalier and

perspiration from upstaging the audio. The minimalistic form factor offers a supreme out-of-the-box experience and features the same cable durability of TwinPlex. DuraPlex was developed with input from esteemed audio professionals and supports the diverse needs of film and television, theater, broadcast, and corporate presentations.

DuraPlex consists of the **DL4 Omnidirectional Waterproof Lavalier Microphone** and the **DH5 Omnidirectional Waterproof Headset Microphone**.

Complementing Shure's expansive portfolio of mid- and high-tier wireless systems, the IP57 rating and cable durability of DuraPlex offers the market an entirely new tier of audio performance and ruggedness. The MEMs element yields consistent and neutral sound quality with low self-noise for vocal clarity in multiple environments.

"In developing DuraPlex, we wanted to provide a simple, consistent, reliable solution, ready to tackle any environment," commented **John Born**, Senior Global Product Manager at Shure. "The neutral response, easy-to-use accessories and design, combined with best-in-class cable durability and waterproof element, quickly make DuraPlex an outstanding leader at this price tier."

DuraPlex comes complete with the accessories needed to support simplified usability: a carrying case, snap-fit and foam windscreens, single tie clip, and a presence cap are all included. DL4 also comes packaged with a sticky mount. The easy-to-conceal form factor and ultra-lightweight/easily mountable design allows for quick applications, costume changes, and discrete placement under wardrobe with no impact

on sound quality.

DuraPlex's 1.6 mm cable is the same that is found in TwinPlex. Ideal for unpredictable, high-stakes environments like reality TV, theater, or even fitness instruction, DuraPlex was tested to ensure uninterrupted audio in all conditions.

DuraPlex DH5 Headsets come in multiple colors (Tan, Cocoa, Black) with a sleek, brushed steel frame for quick, confident, and stable placement. DH5 pricing starts at \$399. DL4 Lavaliers are available in four colors (Black, Tan, Cocoa, White) and are available starting at \$299. Both products are now globally available.



Shure DH5 DuraPlex Omnidirectional Subminiature Headset Microphone

HK AUDIO DEBUTS SONAR SPEAKER SERIES

HK Audio is broadening its expertise to the popular category of powered PA speakers with moulded plastic enclosures. The new **SONAR series** combines HK Audio's sound quality with state-of-the-art features in a particularly popular price segment.

The series consists of the three full-range models **SONAR 110 Xi**, **SONAR 112 Xi** and **SONAR 115 Xi**, and the **SONAR 115 Sub D subwoofer**.

The SONAR full-range models feature a 24-bit DSP controller with colour display, which can be used to conveniently operate the comprehensive connection and setting options. These include two channels for microphone or line signals and an AUX channel for music signals. Not only does the luxury 3-band EQ in each channel exceed the usual standards in this product class – all settings for the SONAR Xi models can

even be conveniently remote controlled with the free SONAR REMOTE app (for iOS and Android). Via the AUX channel, signals can also be streamed wirelessly via Bluetooth 5.0. Bluetooth TWS (True Wireless Stereo) is also possible when using two SONAR speakers.

The SONAR 115 Sub D subwoofer also features a 24-bit DSP controller, with a display that allows you to set parameters such as the crossover frequency, polarity and a delay. A unique feature in this price class are the two presets for Cardioid operation when using two subwoofers. This means when the bass is directed towards the audience, the unwanted emission of low frequencies to the rear is noticeably reduced.

"With SONAR, our goal was to develop the best equipped, best sounding and easiest to configure speaker family

in this price segment", says HK Audio Senior Product Manager **Rüdiger Forse**. "My favourite features of the SONAR Xi models are music streaming and remote control via Bluetooth 5.0. This new standard ensures higher ranges and significantly more stable connections. And the app not only allows to adjust the volume of the channels, I can also control the channel EQs from the audience, for example. In this way, every microphone signal is elegantly under control. The SONAR subwoofer

stands out thanks to its impressive bass response and effective Cardioid options. Even non-professionals can now create perfectly working Cardioid setups with over 30 dB reduction of low frequencies to the rear at the touch of a button without any previous knowledge. Bands or DJs, who often have to perform for hours directly behind the PA, will really appreciate this feature".

The SONAR series speakers will be available in stores in November.



The new SONAR speaker series – Top sound and forward-thinking features in the mainstream price segment

NEW CS218L DUAL 18" SUBCARDIOID SUBWOOFER FROM FULCRUM ACOUSTICS

The **CS218L** is a low profile, dual 18-inch Subcardioid subwoofer module intended for permanent installation in a wide range of venues. Its premium, high power transducers are physically engaging, yet are musically articulate enough to reproduce the subtlety and harmonic nuance of an upright bass or the low strings of a piano. Twelve M10 mounting points facilitate either horizontal or vertical overhead suspension. Four vibration isolation feet prevent spurious vibrations and "walking" in horizontal ground stack applications.

The CS218L incorporates Fulcrum's patented Passive Cardioid Technology to address one of the

major challenges of many direct-radiating subwoofers: excessive rear LF radiation. Unlike active cardioid loudspeakers, Fulcrum's passive cardioid technology does not require an additional amplifier channel

or additional transducer to achieve its impressive low frequency directional control: >10 dB of rear rejection over the subwoofer's operating range.

The Subcardioid behavior is produced by a meticulously conceived



Fulcrum Acoustics CS218L dual 18-inch Subcardioid subwoofer

acoustical circuit which balances the position of the low frequency driver, the enclosure depth and volume, and specially constructed rear-mounted ports which include a calibrated resistive element. By opting for a Subcardi-

oid pattern as opposed to a pure, hyper or super cardioid pattern, the rear rejection increases when the modules are deployed in a subwoofer array.

Fulcrum Acoustic's TQ processing is an integral part of the CS218L design. Sound, innovative acoustical design combined with state-of-the-art digital processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

DPA MICROPHONES ADDS NEW 6000 SERIES ACCESSORIES

DPA Microphones' **6000 Series** of sub-miniature lavaliers now provide even more versatility with the addition of two new accessories—an **eight-way double clip** and a **paintable cap**.

Designed to provide an extra level of stability and flexibility, the eight-way clip offers a 360-degree clipping solution with eight positions in 45-degree increments. This not only makes it possible to quickly and securely clip the mic on both left- and right-button

shirts, but also the neckline of T-shirts and blouses. With the double-mic element, users also have the ability to add two mics, for redundancy – giving an extra level of security during filming and live broadcasts.

Used in place of the standard 6000 Series grid, the paintable cap can easily be



painted or covered in makeup, allowing for unlimited visual creativity for both film and theatre productions. Safe to use with most paints and makeups typically used in film and theatre, the cap is available in white. The versatility of the paintable cap means that it can also be used as is, as a white mic in the buttonhole of a white shirt or mounted in the white eight-way clip for sub-miniature mics.

BOSE UNVEILS THE NEW L1 PRO PORTABLE LINE ARRAY FAMILY

Bose Professional has introduced the **Bose L1 Pro portable line array systems**, the next-level advancement of a PA category. The L1 Pro systems bring in a new era of on-the-go audio for singer-songwriters, mobile DJs and bands. The three new systems, the **L1 Pro8**, **the L1 Pro16**, and **L1 Pro32** with its choice of two subwoofers offer 180-degree horizontal coverage along with unmatched clarity and tonal balance. A RaceTrack woofer design integrated into the L1 Pro8, L1 Pro16 and the **Bose Sub1** and **Sub2 modular subwoofers**, provides extended base response and less bulk, making the subwoofers much easier to transport, carry, and fit onstage. Built-in multi-channel mixers offer EQ, reverb and phantom power, while Bluetooth streaming capabilities and access to the complete library of ToneMatch custom EQ presets, allows performers to play with recording-studio tonal quality.

These three new porta-

ble PA systems are designed to give artists choices, suit different styles and audiences, and provide a solution for creators reintroducing live music and sound experiences into venues and online platforms across the world today. The ultra-portable L1 Pro8 provides a perfect solution for intimate spaces; the portable L1 Pro16 performs exceptionally in small-to-medium spaces; and the peak-performance L1 Pro32 is a portable system for entertaining large audiences.

"The new L1 Pro family gives users an ideal balance of performance and control on stage and portability everywhere else," comments **Craig Jackson**, Portable PA Category Manager for Bose Professional. "We took what our customers loved about the original L1 systems and focused on making improvements in almost every dimension. The L1 Pro family delivers more output and bass extension than ever before and doesn't compromise on portability. We've expanded the I/O and integrated ToneMatch technology quickly sound of and micro-our new L1 control of tionality mobile portable

The Bose L1 Pro

systems are complimented by the **L1 Mix app**, placing complete wireless control in the hands of users for on-the-fly tweaks via controls that are both intuitive and instant. Performers can adjust mixer settings via phone or tablet from the stage, or even walk the room, hear how the mix sounds, and fine-tune on-the-go. Volume and tone settings can be changed in the app as well, with users able to watch the LED encoder move to match.

The L1 Pro8 – Generous coverage

The L1 Pro8 is portable, weighing in at only 38.9 pounds (17.7 kilograms). An ideal companion for shows in small venues such as coffee shops and cafes, the slim design allows performers to benefit from setup simplicity and supreme clarity. As the most portable L1 Pro system, the L1 Pro8 makes it easy to get from vehicle to venue in one trip.

- C-shaped line array features eight articulated 2" neodymium drivers; 180-degree horizontal coverage with wide vertical dispersion, allowing audiences to hear clearly whether seated or standing, and even off to the extreme sides in small to medium venues
- Integrated 7" × 13" subwoofer features a high-excursion RaceTrack driver; performance rivals a conventional 12" woofer with a smaller footprint

L1 Pro16 – Versatile coverage

The L1 Pro16 balances power and portability, offering a streamlined system with high output and extended low frequency. At a weight of 53.7 pounds (24.4 kilograms), it is the perfect fit for DJs, singer-songwriters, and small groups performing in small-to-medium sized venues clubs and bars, with users benefitting from portable system that offers extra room in a vehicle and on stage, alongside

expanded bandwidth.

- J-shaped line array features 16 articulated 2" neodymium drivers; 180-degree horizontal coverage, tight vertical control on top, and wide dispersion on the bottom, covers audiences whether set up on the floor, an elevated stage, and even off to the extreme sides in medium-to-large venues
- Integrated 10" × 18" subwoofer features a high-excursion neodymium RaceTrack driver; performance rivals a conventional 15" woofer with a smaller footprint

L1 Pro32 – Uniform coverage

The L1 Pro32 is the most advanced L1 portable line array, weighing 28.8 pounds (13.0 kilograms). The Sub1 and Sub2 modular subwoofers weigh 35.5 pounds (16.1 kilograms) and 51.7 pounds (23.4 kilograms) respectively. With supreme clarity and output, the L1 Pro32 gives DJs, singer-songwriters, and bands a portable PA system with a powerful bass for medium-to-large-sized venues and events such as weddings and festivals.

- Straight line array, features 32 articulated 2" neodymium drivers; 180-degree horizontal coverage with focused vertical coverage pattern and highest SPL over distance providing intricate sonic detail, clarity, and consistency, even off to the extreme sides in larger venues
- Combines with the Bose Sub1 or Sub2 powered bass module via a single-cable and SubMatch connectivity is included for both power and audio

Each L1 Pro system features a built-in mixer, allowing creators to connect various instruments, microphones and other sources with ease. Two combo XLR-1/4" phantom-powered inputs, 1/4" and 1/8" (3.5 mm) aux inputs are included. Illuminated rotary encoders provide instant access to volume, tone and reverb settings per channel too. There is an option to add in additional instruments and other audio sources via a dedicated ToneMatch port.

The L1 Pro portable line array systems will be available starting October 2020.



The Bose L1 Pro portable line array systems advance a PA category invented by Bose into a new era of on-the-go audio for singer/songwriters, mobile DJs and bands.

L-ACOUSTICS AND JH AUDIO DEVELOP CONTOUR XO IN-EAR MONITOR

L-Acoustics reinforces its mission of elevating the listening experience for professionals and audiophiles worldwide with its first offering in personal audio, **Contour XO** in-ear monitor powered by JH Audio.

Jerry Harvey, the founder of JH Audio, focused on the in-ear experience. Challenged by mega-stars demanding better sound quality on stage, Harvey developed the first custom dual balanced armature in-ear monitor.

L-Acoustics, founded by **Dr. Christian Heil**, revolutionized the

live sound industry by bringing the Wavefront Sculpture Technology of V-DOSC line source arrays to the masses in 1992, and then in 2016 deepened the connection between artist and audience with the first object-based mixing technology for live events, L-ISA Immersive Hyperreal Sound.

Harvey and Heil combined their R&D teams' forces to reproduce the renowned L-Acoustics sonic signature frequency contour in a premium, 10-driver in-ear monitor (IEM) that elevates the standard for in-ear monitoring.

Designed to reproduce the nuances, emotion and impact of live music,

L-Acoustics professional sound systems have their own "sonic signature". Widely viewed as the benchmark for the live music and performing arts industries, the L-Acoustics sonic signature is natural, dynamic, generous, and consistent. Contour XO provides that perfect reference IEM on stage, at the mixing desk, in the studio, or on the move.

"I was impressed by the jeweler-like precision with which JH Audio could tune to match our frequency contour in such a miniaturized enclosure," comments Christian Heil of the new Contour XO. "There's a very generous, deep low-end contour, and a high-end extension that I've never heard on an IEM before. The sound is natural and powerful! We recently launched sound systems for private use via our new division, L-Acoustics Creations, allowing music lovers to 'bring the concert home.' This IEM extends that lifestyle philosophy further still with the concept of L-Acoustics sound wearables to bring the concert with you, anywhere."

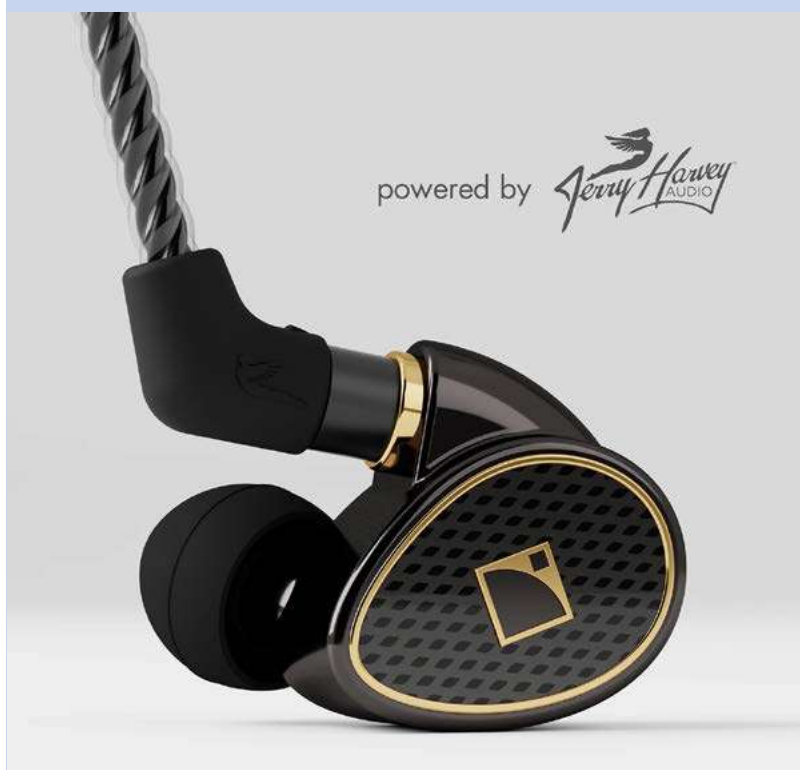
Jerry Harvey was pleased with the new audiophile tech fusion, "I've been trying to make my in-ears sound like an L-Acoustics PA for years. It wasn't until their team challenged us that we got as close as we could. The L-Acoustics R&D team has been great to work with!"

"It was an exhilarating challenge to collaborate with the fast-paced and talented team at JH Audio on the first L-Acoustics IEM. We knew that the outcome of our joint efforts would need to fulfil criteria that are both measurable and pleasurable," explains **Christophe Combet**, L-Acoustics Executive Director

of Research and Development. "The testing process was iterative and uncompromising, right up through the final review and approval from our expert ears listening committee. Contour XO achieves pocket-size portability for our sonic signature, earning the same golden logo that adorns our PAs around the world."

The newly designed universal in-ear monitors bring listeners inside the music with ten balanced armature drivers and 3-way crossover in a quad low, dual mid, and quad high configuration. Contour XO offers control of the low end with bass adjustment of up to 15 dB above flat response. Artists, musicians, sound professionals, and audiophiles alike will appreciate the individual care and attention to detail transmitted by the limited-edition premium in-ear audio solution, Contour XO.

Guillaume Le Nost, L-Acoustics Executive Director of Creative Technologies, elaborates on how the IEM represents a creative product fit for the company. "Object-based mixing to achieve natural, spatialized audio is the future of sound. The success of L-ISA Immersive Hyperreal Sound technology has led us to seek ways to further streamline the production process. L-ISA binaural software tools are scheduled to be released in early 2021. We are pleased to offer early access to this L-ISA binaural software package to first adopters of Contour XO."



WHARFEDALE PRO NOW SHIPPING WLA-210XF SYSTEM - IPX6 CERTIFIED LINE ARRAY SYSTEM

Wharfedale Pro is now shipping their latest IPX6 certified line array system - the **WLA-210XF**.

Using the same custom-made Wharfedale Pro 10" drivers and the same 3.0" Neo compression driver as the acclaimed WLA-210X, the new WLA-210XF system can be used even in extreme weather conditions. Delivering up to 138dB Max SPL@1 meter, each WLA-210XF element is a powerful, all-weather solution.

The system is supported by the new dual 15" WLA-210XSUBF subwoofer. With a Max SPL@1 meter of 145dB, this sub also delivers the low end power needed for the array.

Both the WLA-210XF and WLA-210XSUBF are constructed of up to 18mm premium birch plywood, are covered in waterproof paint and use integral aluminium rigging hardware. Flat front grilles forged from 3mm aluminium also ensure long lasting

looks and durability during system transportation and storage.

Wax wrapped components and an aluminium inner case protect the drivers and crossovers from water damage. In addition, Neutrik NLT4 MP BAG waterproof connectors have been chosen to ensure the highest level of weather protection.

Both the WLA-210XF and the WLA-210XSUBF are supported within EASE.



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Effectron Reinforces **Dr. APJ Abdul Kalam College Auditorium** with Adamson Sound, Barco Projection and Effectron Lights and Furnishing

Interior view of the Dr. APJ Abdul Kalam College Auditorium



The 2000-seat multipurpose auditorium at the Dr. APJ Abdul Kalam Government College in Daman, in August 2020 was installed with an impressive audio architecture from Adamson with the aim of hosting conferences, screenings, concerts, and theatre. Executed by the team at Effectron New Delhi, the system was sourced through Sonotone and LBT, Adamson's official distributors in India and Barco and Creston directly. PT spoke to Anuj Darbari, Director, Effectron to get insights on the installation.

The college is affiliated with Gujarat University and runs eight bachelor programs i.e. B. A. in Gujarati Literature, Economics and English Literature, B.Com. and B. Sc. in Chemistry, Mathematics, Microbiology, Botany.

Layout

The auditorium is part of the APJ Ab-



Er. Anuj Darbari , Director, Effectron Luminex Ltd. New Delhi

ventions, cultural evenings, debates, quizzes, dance and drama performances. The layout of the building consists of a stage and two levels of seating. The stage approximately 20 mts wide with a depth of 7 mts, is ideal for ballets and choirs. For stage lighting the auditorium originally had halogen lights which needed multiple fixtures.

Conceptualization

The project was conceptualized by Chief Engineer **B.C. Warli** of Omnibus Industrial Development Corporation of Daman & Diu and Dadra & Nagar Haveli Limited and Architect **Arun Bij**, Principal Architect and Founder of Design Plus, Gurgaon. Together they optimized the space and designed the auditorium into a fan shape to accommodate 2000

ta who has built over 100 auditoriums.

Elaborating on how Effectron was formed in 1988 as part of an expansion of the Darbari Group and now evolved into a turnkey project execution company for auditoriums and studios, across the globe, bagged this prestigious project, Anuj Darbari says, "The BoQ (Bill of Quantity) was framed and the tender was floated. The tender was on a turnkey basis comprising - Acoustics, CCTV, Lifts, Seating, Stage Lighting and Furnishing, and Multimedia Presentation System. The tender was bagged by Turnkey Contractor M/s **Srishti Enterprise** headed by **Er. Sandeep Gupta**. Er. Gupta made multiple presentations and submitted designs within the scope of BoQ to suit the acoustics and aesthetics of the space. The core team headed by



Er Sandeep Gupta- Founder and owner of Srishti Enterprises, Chandigarh



dul Kalam College premises located at the outskirts of Silvassa, Dadra and Nagar Haveli close to the academic block of the college. This new building has break out spaces and wide corridors that enable large gatherings and a multi-utility space which aims to enhance the overall academic development of students.

The auditorium is designed and equipped to deliver seminars, con-

students/audience with spacious aisles and a perfect line of sight. "It was a pleasure and delight to work in a space which has been tailor-made for a perfect auditorium," said **Er. Anuj Darbari**, Director – Effectron.

The professional commitment of Anuj Darbari and his team, made Effectron the preferred choice as SI for the project, commented Mr. **Sandeep Gupta**

Chief Engineer B.C. Warli-OIDC, Arch. Arun Bij and Er Sandeep Gupta finally froze on the design.

Stage Lighting Schematic

"In accordance with the BoQ, we suggested a replacement from Halogen based stage lighting to LED lighting which could offer true colors and also reduce the need for multiple fixtures,

using RGBW Lights," informs Anuj.

Furnishings included state-of-the-art motorized light bars with flip flops for cable management and easy maintenance of lights as focusing and cleaning of lights becomes easy.

The three curtains on stage and cyclorama with 8 sets of wings provided what is required for an Auditorium built in 2020.



consists of 18 **Adamson IS7 line array cabinets** deployed as the FOH to allow for increased vertical dispersion without sacrificing high frequency presence in the far field, while the **IS118 subwoofers** under the stage provide clean, low frequency impact. Adamson's **Point Concentric Series** products have also

been installed and embedded in the stage parapet, with **PC6 loudspeakers** deployed as lip fills and **PC8 loudspeakers** deployed as under-balcony delays. The entire system is powered by **Lab. gruppen D80:4L amplifiers**.

Anuj states, "The Adamson IS7 is sleek and lightweight, it's pleasantly surprising

to experience such impressive sound and clarity from the system. Not just that, the sound reproduction is smooth and pristine throughout the auditorium and the speakers blend seamlessly into the space. We worked with **Nitesh Narayan** on the design using Adamson's Blueprint AV software, which helped us

in fine-tuning the system."

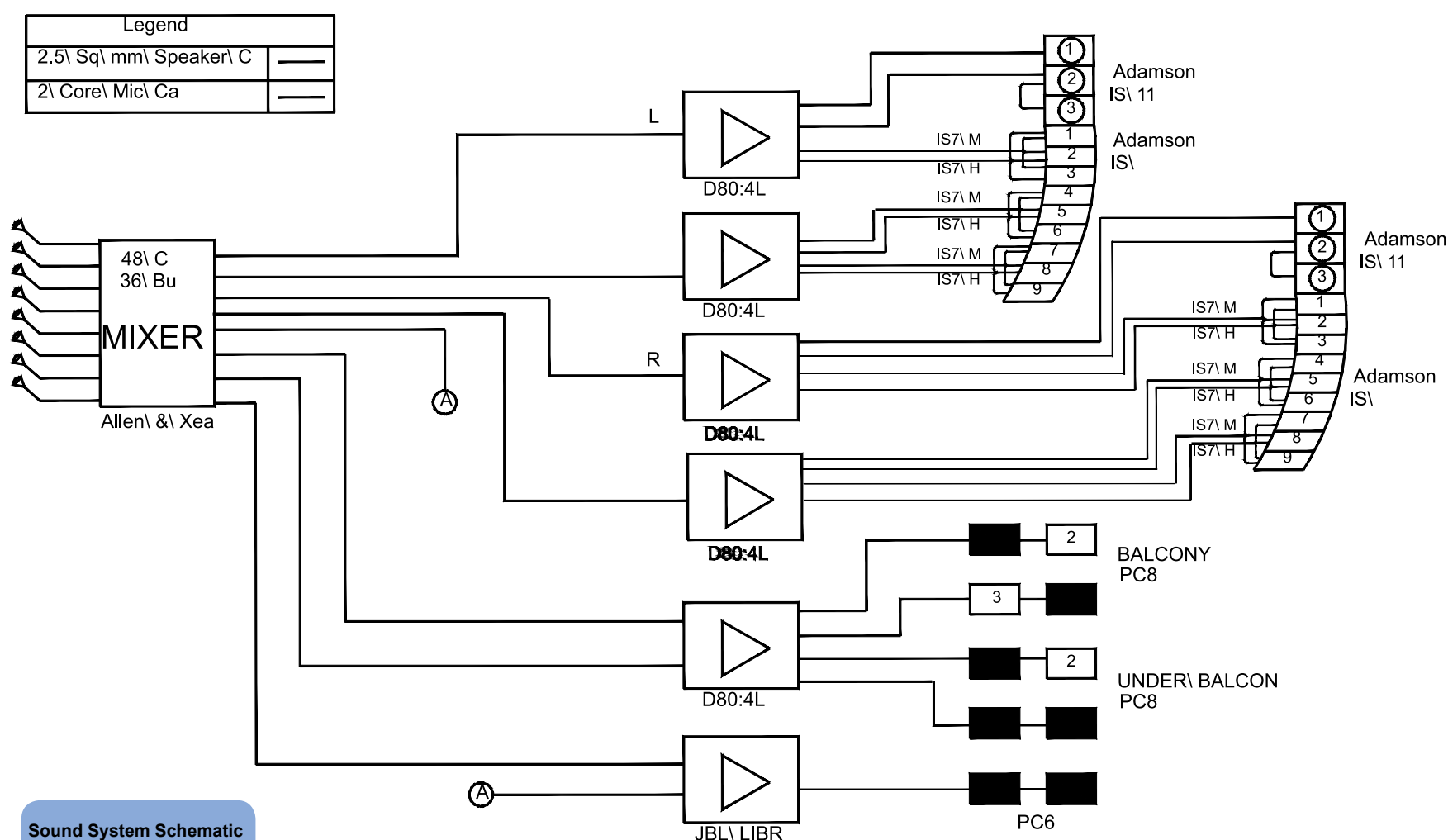
Effectron approached **Karan Nagpal**, Director, Sonotone, during the design phase of the implementation. Together with Nitesh Narayan, who is also the Sound Engineer for Sanam and Farhan Akhtar, they provided further tweaking of frequencies to make the listening experience an immersive solution.

"Effectron had already installed and connected the system as per the diagrams and there was no difficulty in final alignment and tuning," said Nitesh Narayan who was delighted to balance the system.

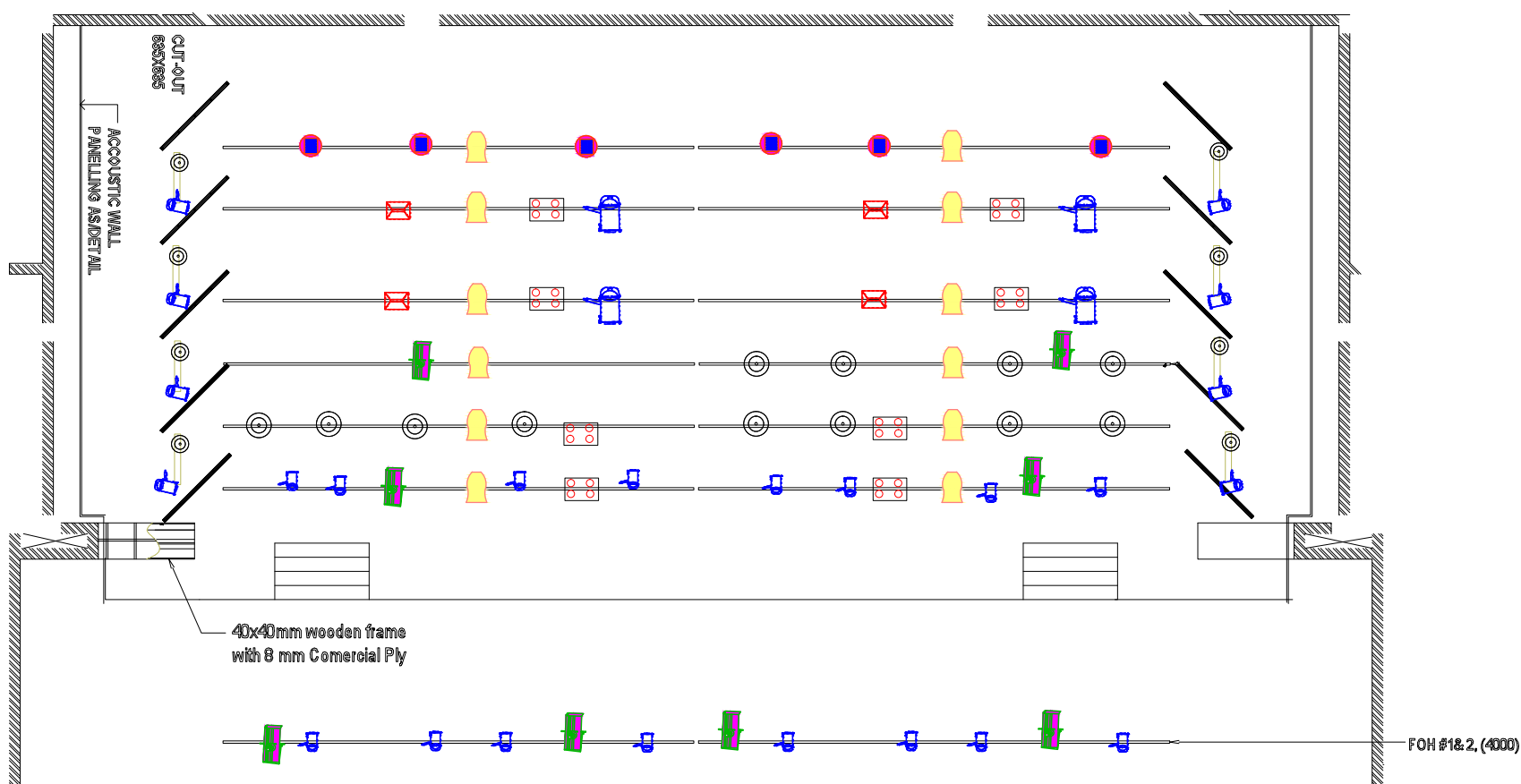
"Karan ensured timely delivery of the entire BOQ from Canada, and we were glad we could do the complete install during COVID-19 Pandemic using strict compliance to COVID-19 Safety guidelines at site," informs Anuj.

According to Karan, "We were provided with the complete layout drawing of the venue and the details of what they were expecting in terms of SPL levels at the venue. On the basis of that we mapped out a 3D simulation of the venue using Adamson's propriety blueprint software and that provided us with all kinds of combination of speakers."

The 3D simulation helped the team choose the right product within the



Sound System Schematic



S.NO.	SOCKETS TYPE	LIGHT LEGEND	FOH 1	FOH #2	LIGHT BAR #1	LIGHT BAR #2	LIGHT BAR #3	LIGHT BAR #4	LIGHT BAR #5	LIGHT BAR #6	LIGHT BAR #7	LIGHT BAR #8	LIGHT BAR #9	LIGHT BAR #10	LIGHT BAR #11	LIGHT BAR #12	LL (R)	LL (L)	Floor	TOTAL QTY.
1.	Profile Light		2	2	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	8
2.	PC 1000W		-	-	-	-	-	-	-	-	1	1	1	1	-	-	4	4	-	12
3.	FRESNEL 1000W		-	-	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	12
4.	FLOOD LIGHT 1000W		-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	4
5.	4x100 W COB LED BLINDER		-	-	1	1	1	1	-	-	1	1	1	1	-	-	-	-	-	8
6.	LED PAR 200W		4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	16
7.	RGBW 1018 LED		-	-	-	-	4	4	4	4	-	-	-	-	-	-	4	4	-	24
8.	VIDEO LIGHT 1083		-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	6
9.	FOG MACHINE 3000W		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2

Stage Lighting and Furnishing Schematic

parameters that was given by Effectron. Sonotone provided the design and supplied all the products for the venue. Anuj with his team along with local help executed the entire installation.

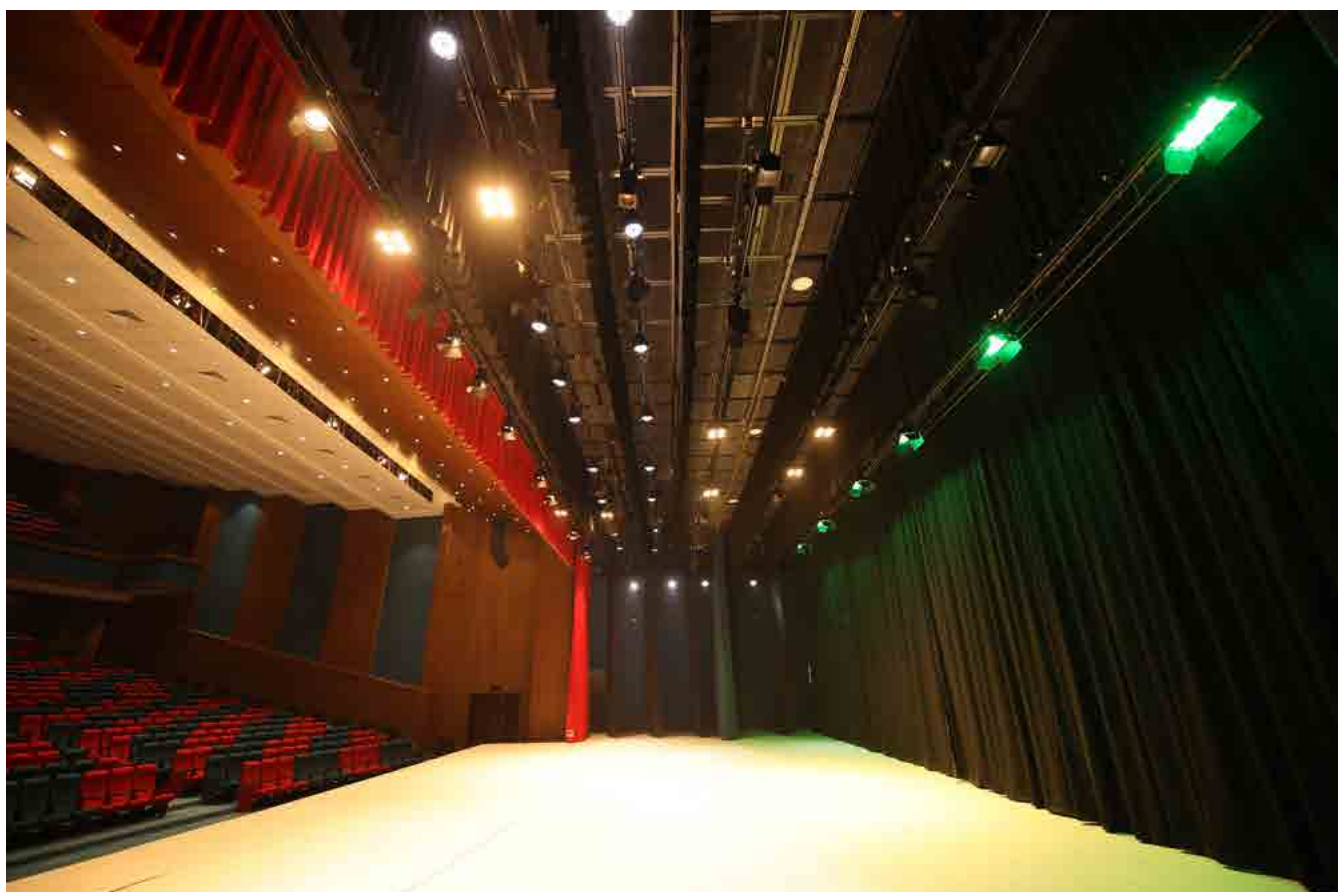
"The overall audio quality and level was seamless throughout the venue, rendering a pleasant listening experience perfectly suited for the venue," informs Karan.

Anuj further added, "Using Adamson's wide range of loudspeakers, it was easy to pick and choose the right product and see the plot on the Adamson Blueprint AV software for its impact on STI and SPL levels."

Stage Lighting and Furnishing Schematic

The auditorium had an LCD projector which was modified to a **Barco Laser Projector**, which ensures crisper image quality and almost negligible lamp replacement cost.

Crestron Transmitters and receivers provided connectivity of multi-input data facility from the Stage. The **Matrix switcher** provided an option to choose the right input to the source.



6 sets of Stage Lighting Bars covering the entire stage to ensure no dark spots

Equipment List

Adamson:

Line Arrays: IS7 - 18 nos. distributed in two arrays (9 each in the main hang) (in front of the stage facing the audience)

Subwoofers: IS118 - 6 nos. 18" single subwoofer (in front area)

Front Fill Speakers: Point Concentric Loud speakers – 2 nos. PC6 (embedded in stage parapet)

Under Balcony Delay Loud Speakers: 4 nos. Point concentric PC8 (Below the balcony)

Stage: 4 nos. PC8 (on stage for lip fills)

Lab.gruppen Amplifiers: 5 nos. D80:4L 4 Channel Amplifier (in the control room)

Beyerdynamic Microphones: Gooseneck Microphones, Hand-held cordless microphones, Lapel Microphones, Ceiling suspended Microphones, Boundary Layer Microphones for theatres (on stage)

Effectron Stage Lighting

There were 6 sets of Stage Lighting Bars to cover the entire stage and ensure no dark spots on stage.

FOH Light Bar: Highlights area ahead of Curtain, uses LED PAR and Profiles

Light Bar #1, #2 to cover the head table: it uses Fresnel, Floods, LED Par RGBW

Light Bar#3, #4 and #5 ensures complete coverage of stage. Light Bar #3 also provides back lighting

Light Bar# 6 is a Cyc Light Bar.

Splitter 1 in 8 out, 3nos optically isolated to provide DMX Bus across all light point

Dimmers: 24 Channel x2 nos 4 KW Thyristor based DMX controlled Relay / Dimmer Panel.

Effectron Stage Furnishing

Motorised Light/ Mic/Set Bars: 14 Nos.

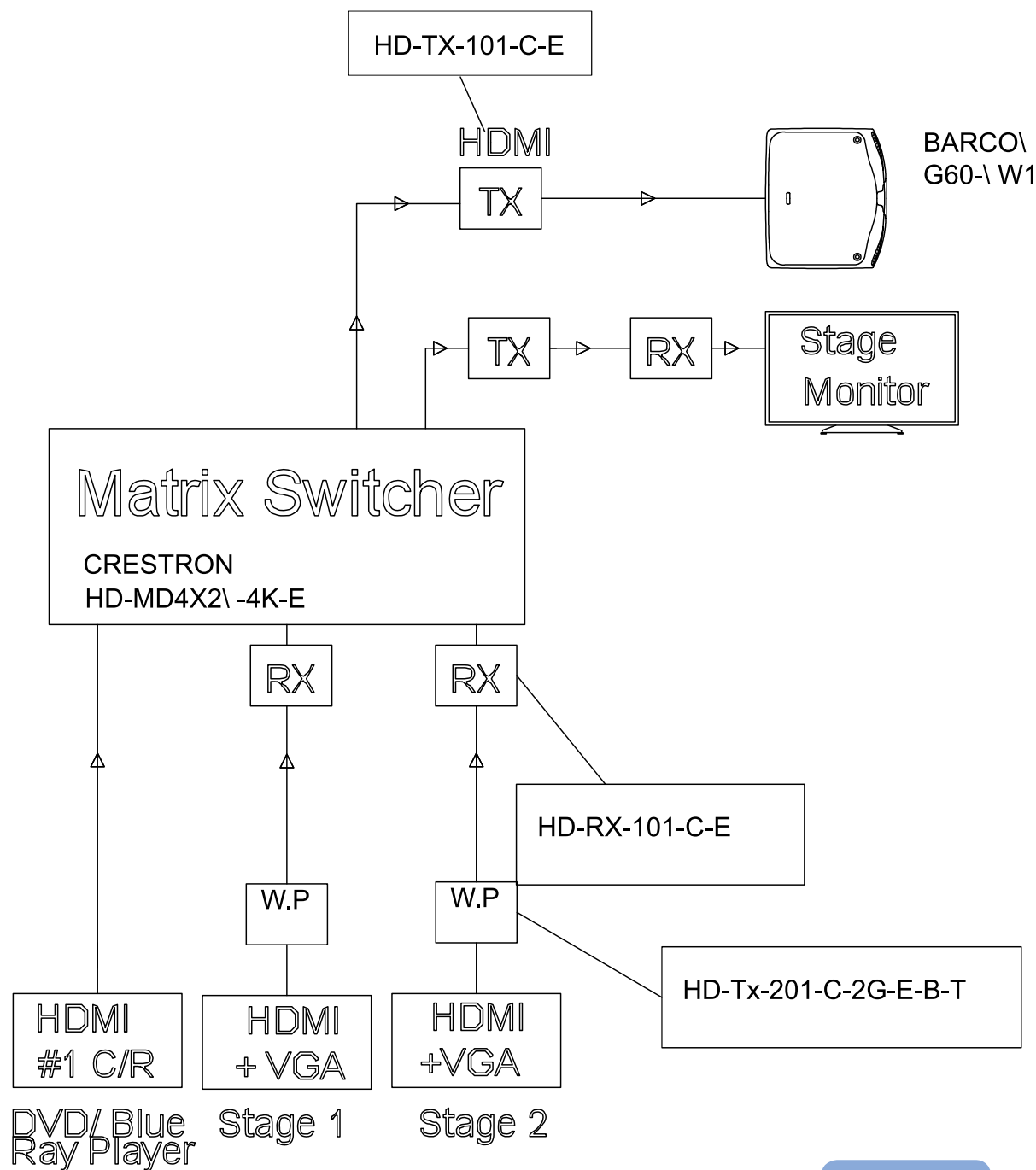
Motorised Curtains: 3 no. – Main Curtain (Velvet), Act and Rear Curtain (Blaze Cotton) Wings (Blaze Cotton), Side Ladders for Lights

Video System

Equipped with 10000 Lumens Laser Phosphor **Barco Projector** with long throw lens to cover a distance of 32 mtrs and give a projection ht of 6 mtr x 14 mtr.

Switcher – **Crestron**

Wall Plates etc. – **Crestron**



Video Schematic

The auditorium was also installed with Stage Lighting Video System and Low Voltage system.

Conclusion

The installation at the Dr. APJ Abdul Kalam College Auditorium, in Silvasa, started in January 2020 and was completed during the COVID-19 lockdown in August 2020.

The only challenge the team faced during the entire installation was ensuring adherence to Covid-19 safety protocols across the entire seat and across all activities as well as sending all materials in only two trucks.

"The overall integration provided a

fulfilling experience not only for me but for the entire team Led ably by SRISHTI'S Project Manager **Harish Mallanna** who in coordination with our National Project Head **Bhim Manchanda** ensured timely handover of the system. The COVID-19 Pandemic ensured more quality and safety being infused in the project. Every morning there was a virtual site meeting with the entire team at our project office in New Delhi with **Bharat Sehgal** - project coordinator ensured all material required at site was organised and sent, as transport was a challenge. Our national Service support Incharge **Amresh Mishra** guided through hand sketches / drawings using whats app to

our Site Engineer **Dinesh Dubey** to ensure zero defect installation, I take pride in the team that executed the project flawlessly – I Thank Team Effectron, Team Srishti & Team Adamson for the undying energy exhibited during the pandemic" says Anuj.

"Most importantly, the college management was absolutely delighted with the Adamson system. They loved its small size, unobtrusive appearance, and the fact that it looked so good in the auditorium. This is just the sort of application for which the IS Series is designed, offering amazing sound, easy installation, all in a compact package", concludes Anuj.



PRESBYTERIAN CHURCH IN MIZORAM EQUIPPED WITH MACKIE'S DRM LINE ARRAY

Presbyterian Church in Lengpui, Mizoram has been faithfully serving the community in addition to its regular services. To energize the premises, they brought in Aizawl-based **Music Home** to equip the space with a new sound reinforce-

ment solution.

Music Home is one of the most renowned pro-audio companies in Mizoram and has done several audio installations including Presbyterian Church in Lawipu. Together with the church's committee, they selected

Mackie's state-of-the-art **DRM line array** for this project. **Lalrin Fela**, of Music Home, on opting for Mackie's DRM loudspeakers: "For this project, we went with Mackie's DRM line array owing to its consistent performance, ease of use and unmatched clarity."

After the initial survey and understanding the church's architecture, with balconies and high ceilings, the Music Home team decided on a configuration of 3 **DRM12A arrayable powered loudspeakers**, along with a **DRM18S powered subwoofer**, hung from the ceiling, on either side. "In such demanding environments, the DRM loudspeaker offers many arrangement possibilities concerning coverage and angle. The powered system is extremely reliable, especially in fixed installations, and offers high efficiency 2000W peak power," says Fela.

"The church was thrilled with the result, especially the system's speech reproduction," comments Fela. "The way we were able to integrate the DRM's and array the subwoofer, it doesn't matter where you sit; it's all clear and intelligible. Its sound coverage and consistency over long distances make it a perfect fit for environments like churches that have complex acoustic spaces. We are elated that the church is so happy with their new Mackie DRM line array," Fela concludes.



Aizawl-based Music Home decided on a configuration of 3 DRM12A arrayable powered loudspeakers, along with a DRM18S powered subwoofer, hung from the ceiling, on either side

ALCONS AUDIO EXPANDS CRMS SERIES BY SLIMMING DOWN

The **CRMSC-SRIW/120** is developed as an ultra-compact reference main/screen system – or compact surround system in immersive sound-for-picture applications. It can also be used as full-range sound system in any installed audio application, where a high-quality sound reproduction with inconspicuous in-wall or on-wall mounting is required.

Typical applications include sound system for auditoria, performing arts theaters, screening rooms, post-production facilities and dubbing stages, premium Home Cinemas and quality-conscious cinemas.

The CRMSC-SRIW/120 is part of the CRMSC system series: By utilizing identical MHF components, a perfect voicing matching between screen- and surround system is realized, resulting in an exceptionally wide and uniform sound stage throughout the entire listening area.

Featuring the patented **Alcons** pro-ribbon transducer technology, the CRMSC-SRIW/120 surround combines

an exceptional clarity and intelligibility with an unusually high dynamic range, offering the most realistic linear sound reproduction possible at any SPL.

The two-way passive-filtered CRMSC-SRIW/120 system consists of the RBN202 pro-ribbon driver for HF and a vented 6.5" mid-bass for LF reproduction; the HF section has a 500 W peak power input, enabling a 1:16 dynamic range with up to 90% less distortion from 1 kHz to beyond 20 kHz.

The patented 120-degrees and patent-pending 90-degrees dispersion up to the highest frequencies not only offers a very wide and coherent direct-field coverage throughout the listening space; it also guarantees a consistent reflected diffuse-field response.

The CRMSC-SRIW low frequency section is tuned for a usable frequency response down to 53Hz, enabling a smooth transition with additional LFE subwoofer systems.

The Signal Integrity Sensing pre-wiring ensures complete cable/connector

compensation between the CRMSC-SRIW/120 and the ALC amplified loudspeaker controller, the dedicated drive-engine; together with VHIR processing, SIS significantly increases response accuracy, regardless of cable length and system impedance.

Philip "Dr. Phil" de Haan, Head of Alcons Audio R&D: "One of the strongest and continuously returning requests we have been receiving from the customers and installers on the CRMS series, has been minimal cabinet depth. The new patent-pending waveguide we've developed, enables us to minimize cabinet depth to 100 mm / 3.9-in fitting in typical "2-by-4" wall constructions, while maintaining full projection control up to and beyond 20.000Hz, which is unique with ribbon line-source transducers."

Further to the ultra-shallow depth, the CRMSC-SRIW/120 also features a revolvable RBN waveguide, optional cloth grill and ACO Architect Color Option in 180+ RAL color schemes for



Alcons CRMSC-SRIW-120

easy, inconspicuous in-wall or on-wall mounting.

As a result of Alcons' tight manufacturing standards, all CRMSC system cabinets are well within "matched pair" tolerance, for a reference studio-grade response. The system comes with a 6-year "no hassle" warranty.

18 BODYGUARD ROOFTOP & SKYBAR EQUIPPED WITH BRITISH ACOUSTICS

Mayvilas is one of Dehradun's finest luxurious boutique hotels, wonderfully located in the valley. Its elegance can be seen in its harmonious architecture, panoramic front and warm hospitality. 18 Bodyguard is chistened on the rooftop of this hotel, aiming to add a dash of entertainment to these luxurious stays.

18 Bodyguard is a newly opened Rooftop & Skybar within the luxury boutique hotel that promises a luxurious view of the city in the company of good food and great music. At the heart of the music, is the **British Acoustics 6 Series system**, coupled with the VS systems as fills installed by Systems Integrator Audio Technik,

system should also be capable of handling a private or corporate event. The real challenge however was in the fact that all of this had to be done without disturbing the guests in the rooms. The place wasn't acoustically treated to isolate the bar completely and this amped up the challenge



both well-known brands in the acoustic industry. Just on viewing their proposal, we were impressed by the level of detail with which they understood our requirement. We almost instantly finalised the order, and boy are we happy with that!" said Mr. **Yogi Chauhan**, Owner, Mayvilas Dehradun.

The system comprises a set of multiple **PW 615's** as the main PA system, complemented by the LF extension of the high-performance **Delta 818 subwoofer**. A host of the mini yet powerful, **VS Series systems** fill the remainder of the club as well

Roshan.

"We received the layouts from Audio Technik and designed the system based on their inputs. We focused on even distribution and multiple layering of speakers rather than a single FOH set-up as this would help in containing the sound within the club. Individual Amplification channels meant we had better DSP control over the speakers and we could ensure tonal balance and safety at the venue," said **Anurag Khanna**, DGM-North, VMT Enterprise.

"We have been working with the team at Audio Technik closely and they are as professional as they are



British Acoustics PW 615 installed as the main PA system

New Delhi.

"Mayvilas approached us looking for a great sounding system that can sustain high SPL clubbing but must be aesthetically appealing all the same" said **Roshan Nair**, Director, Audio Technik.

The brief was to deliver a High Energy Bar where guests can unwind over a drink after a long day. The

of reducing the sound from travelling into the other areas of the hotel.

"The owners were extremely passionate about the project and every little detail was monitored by them. We immediately chose British Acoustics as the correct fit for the installation as it perfectly fit the bill" added **Ashish Khanna**, Sales Lead at Audio Technik.

"British Acoustics & Audio Technik are



The club and the rooftop equipped with VS Series systems

as the rooftop. The system is powered by the **TK series, Class-H amplifiers** that are exceedingly reliable and tonally brilliant. The entire system is tied in with the **Delta Series Speaker Management System**.

"We chose British Acoustics as we were sure of the quality, performance and support. We have had an excellent relation with their team and their products adhere to extremely high standards," added

warm. Once a site is taken over by their team, there is very little assistance required. Their team is both qualified and motivated to provide not only the best solutions, but also services. It was this combination that outlines the success at 18 Bodyguard" concluded Anurag.

The system was installed and commissioned during the Lockdown.

JATAN SHAH ELECTED TO 2021 AVIXA BOARD OF DIRECTORS

QSC has announced that **Jatan Shah**, Executive Vice President, Chief Operating and Technology Officer for QSC, has been elected to the 2021 AVIXA Board of Directors. During his term, which begins January 1, 2021, Jatan will sit as a Director on the Board and help to shape the vision of the association and the pro AV industry.

"This year several new global

challenges have forced us to re-evaluate how we design AV solutions and provide new ways for our world to connect, engage and collaborate," says Shah. "As we move forward as an industry, a focus of our work will be to apply our skills, artistry, and forward-thinking innovation to creatively address the new challenges we are facing. I am honored, humbled and thrilled to be

joining the AVIXA Board and work more closely with some of our industry's most dedicated individuals to serve our member organizations and expand the Pro AV industry."

Jatan Shah, Executive Vice President, Chief Operating and Technology Officer for QSC



QSC ANNOUNCES AVAILABILITY OF NEW ATTERO TECH BY QSC SOLUTIONS

QSC has announced the availability of several new **Attero Tech by QSC solutions**, including additions to the Axon family of network audio interfaces and Axiom family of analog audio I/O extenders, as well as a new purpose-built network amplifier. Like the rest of the Attero Tech by QSC portfolio, these new endpoints can quickly and easily integrate into the Q-SYS Ecosystem with Q-SYS Extensions available in Q-SYS Designer Software.

"Since adding the Attero Tech line of innovative I/O endpoints to the QSC portfolio, we have been able to offer Q-SYS customers several cost-effective options to on-ramp audio into the software-based Q-SYS Ecosystem," says **Trent Wagner**, Audio Product Manager, QSC. "These new Attero Tech by

QSC solutions expand our portfolio with multiple form factors giving integrators additional flexibility to select the interface or extender that works best for any number of applications including higher education, corporate and hospitality."

Axon Series Network Audio Interfaces

The **Axon D2i** is a single-gang Dante/AES67 network audio I/O wallplate, allowing for easy integration of analog devices into network audio applications. It features two XLR+quarter-inch TRS combo inputs for on-ramp of microphones, instruments or mixer outputs in applications where conveniently located audio connectivity is a must. It also includes an Axiom port for integration of Attero Tech by QSC Axiom wallplates (USB, Bluetooth or XLR) for additional I/O customization.

The **Axon DBU** is a surface-mount Dante/AES67 network audio interface offering bi-directional USB and stereo Bluetooth audio I/O for the Q-SYS Ecosystem. It allows users to connect their personal devices to integrate the room's audio into their web conferencing applications (such as Microsoft Teams, Zoom and Google Meet) via USB or Bluetooth. Its compact form factor allows maximizing system design flexibility with capabilities to mount under a table or in a rack.

Axiom Series Analog Audio I/O Extenders

The **Axiom AXPIO** audio expander includes two Flex I/O channels, allowing integrators to pair the AXPIO with up to two Axiom wallplates (Axiom ML1, USB1, BT1) to simply and cost-effectively integrate analog audio devices into a room's audio system, including QSC

Business Music mixers and amplifiers. In addition, the AXPIO provides RS-232 connectivity for control integration into Q-SYS.

The **Axiom USB1** provides bi-directional USB audio connectivity for education, corporate or hospitality applications. With the USB1, users can interface a device's USB audio with the room's audio system. It also offers BYOD support, allowing users to connect their laptops and integrate the room's audio into web conferencing applications.

The **Axiom BT1** is a bi-directional Bluetooth audio wallplate that allows users to easily connect consumer-grade devices to a room's audio system for music playback or Bluetooth conference call bridging, making this ideal for education, corporate or hospitality AV systems.

Attero Tech by QSC Network Amplifier

The **Axon DTH1620** is a Dante/AES67 network amplifier specifically designed to support high-channel, low-power applications, such as theme park rides, attractions and immersive exhibits. It offers 20 watts to each of its 16 channels in a ruggedized and compact form factor. It specializes in its ability to support both traditional passive transducers and haptic transducers for specialized audio applications.



SOMMER CABLES ANNOUNCES AQUA MARINEX FOR PERMANENT INSTALLATION IN DAMP ENVIRONMENTS/UNDERWATER

Sommer Cables recently expanded their watertight **AQUA MARINEX** cable series by additional connection variants or, for especially tough demands, developed rodent-proof versions with a built-in braid of aramide fibers from bullet-proof protective vests.

People who install cables e.g. in the garden, on the terrace, near water, in sauna facilities, in boatbuilding or on sports grounds want to be sure that the material used is going to withstand all weather and environmental conditions such as rain, snow, ice, mud, sea or chlorine water, steam or heat with a sleep-well effect. Depending on the

connection type, the cables of the series are suitable for permanent installation under water in a maximum depth of 50 m (164 ft.).

A special PUR jacket with water-blocking tape minimizes the intrusion of water and other liquids and stops longitudinal spreading in case of cable damages, while the transversely watertight design stops water from spreading into the



inner insulation layers. Matching connectors in the protection classes IP44

and IP67 as well as fully ready-assembled solutions complete the range.

ROYAL CHINA ELEVATES NIGHTLIFE IN KOLKATA WITH JBL AUDIO SYSTEM

Sighapandi Electronics recently equipped Royal China with a class-leading JBL Professional networked audio system to deliver exceptional audio in the restaurant and nightclub areas.

Royal China is a fine dining restaurant in Kolkata, India. The restaurant serves authentic Cantonese cuisine in a chic and upscale environment. Located in the Forum Courtyard Mall, Royal China also features a small nightclub in

addition to the restaurant. During the design phase, the owners of Royal China recognized that the restaurant needed a flexible loudspeaker system that offered a clear, high quality sound. However, due to the low ceilings in the venue, they required a compact solution that would not detract from the décor. The owners of Royal China worked with Sighapandi Electronics to install a JBL Professional network audio system featuring JBL loudspeakers, JBL and Crown amplifiers and a BSS signal

processor.

"The ceiling height of nine feet was a big challenge," said **Jagjeet Singh Bhatti**, Sighapandi Electronics. "We obviously had to be very careful about reflections in the live room and ensure that the direct-to-reverberant sound ratio was kept high for every audience member."

Sighapandi Electronics chose four **JBL AM7212/95 loudspeakers** with two **JBL ASB6125 subwoofers** for the club area. These lightweight, high-powered

speakers provide excellent coverage in a variety of patterns and have high-slope passive networks to minimize band overlap. Sighapandi Electronics also designed brackets for the JBL AM7212/95 loudspeakers, as there was no option to fly the speakers with such a low ceiling.

In the restaurant, the team installed twelve **JBL 8128 in-ceiling loudspeakers** along with four **JBL 8124 in-ceiling loudspeakers**. These full range high fidelity speakers deliver impressive output while using minimal amplifier power.

The system was powered by a **BSS BLU50 signal processor**, which features configurable signal processing, logic processing and a BLU link digital audio bus. Additionally, the team installed two **Crown XTI 6002 Amplifiers** in the club, as well as one **JBL Libra 500 Amplifier** and one **JBL Libra 250 Amplifier** in the restaurant. These amplifiers provide user control over frequency, gain and filter type for system-specific tuning.

"The speakers that were suggested initially were huge," said **Rishi Bajoria**, Owner of Royal China. "Given the fact that there was a space constraint, we asked Sighapandi Electronics to take another look at the design. They came back to us with a new design using slightly smaller speakers and high-fidelity sound. When we turned the system on, we were amazed."



Sighapandi Electronics chose four JBL AM7212/95 loudspeakers with two JBL ASB6125 subwoofers for the club area and JBL 8128 in-ceiling loudspeakers along with four JBL 8124 in-ceiling loudspeakers for the restaurant

VISIONARY REDEFINES MULTIVIEW TECHNOLOGY WITH MV4 IP MULTIVIEWER

Visionary, a manufacturer of reliable, cost-effective AV over IP technologies, has announced the **MV4 IP Multiviewer**, a multi-windowing solution for monitoring or displaying multiple sources simultaneously. The MV4 IP Multiviewer can mix and match input resolutions, scale any video input up to 4K UHD and route to any input window to combine up to four sources in a single 4K image.

Designed for small and large commercial venues, the MV4 IP Multiviewer connects to a network and combines up to four AV over IP streams from Visionary's PacketAV Matrix Series 4K encoders. Each input can be scaled and positioned using default presets — such as quad view, side-by-side,

full screen, picture-in-picture, picture-aside-picture and others — or via a custom, user-defined layout configuration. The MV4 IP Multiviewer is designed to process switchable input streams simultaneously in a variety of layouts. The MV4 IP Multiviewer's independent audio capabilities enable users to select audio from any of the four sources or an additional source. The MV4 IP Multiviewer is also ideal for conference rooms, control rooms and classrooms, and represents next generation advancements in multi-view display technology.

The MV4 IP Multiviewer redefines traditional multi-windowing technology by eliminating the need for a separate HDMI multiviewer at each display. It

solves for common design and space limitations by locating anywhere on a network, without having to be integrated near the source or displays. The

network-based design enables users to easily scale to large capabilities while reducing installation and maintenance costs.



Visionary MV4 IP Multiviewer

JBL PROFESSIONAL INTRODUCES FIR TUNINGS FOR AE SERIES LOUDSPEAKERS

HARMAN Professional Solutions, has introduced **JBL Professional FIR (Finite Impulse Response) Tunings for the AE (Application Engineered) Series**, providing further enhanced performance for the premium installation loudspeaker line.

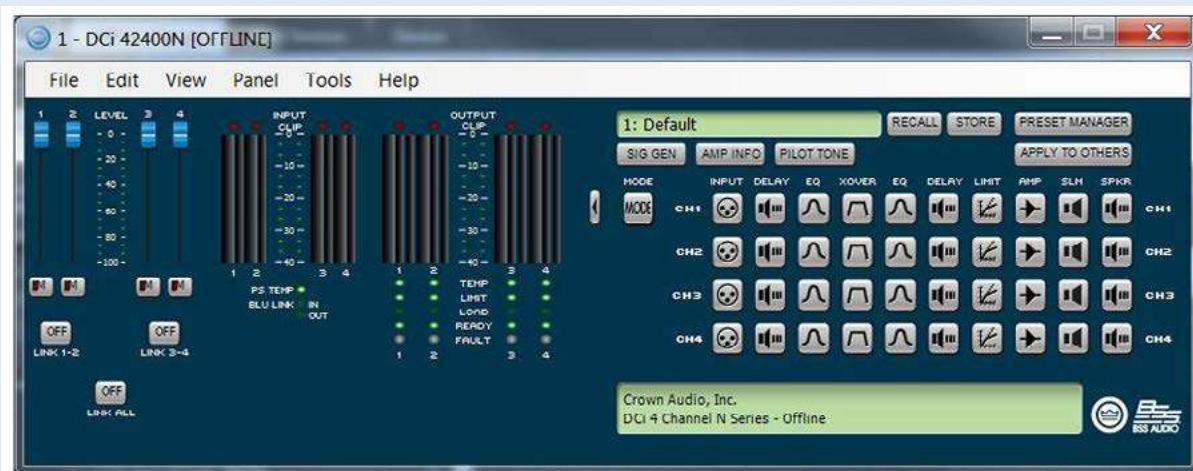
AE Series FIR filters optimize frequency response and phase response to a finer degree of precision than traditionally possible with standard IIR “parameter-based” filters. The result is overall enhanced sonic quality from the loudspeaker, along with improved,

more consistent coverage, and improved arrayability. In addition, built-in LevelMax Limiter settings further protect speakers from damage due to overpowering.

To cover the broad spectrum of AE Series models in their various config-

uration modes (passive and/or bi-amplified), the release contains 70 individual tuning files for use with Crown DCI-N and DCI-DA power amplifiers. In addition to new installations, these tunings can also be retrofitted into existing AE Series installations. The AE Series includes a broad line of permanent installation loudspeaker models of various sizes, coverage patterns, and power levels.

“AE Series loudspeakers incorporate leading technology drivers, premium performance capabilities, incredible reliability, and a wide selection of models to meet just about any challenge,” said **Rick Kamlet**, Senior Product Manager for Installation Loudspeakers. “These FIR Tunings do a phenomenal job of enhancing the AE line even further and producing unmatched performance and versatility.”



JBL Professional FIR (Finite Impulse Response) Tunings for the AE (Application Engineered) Series has 70 individual files ensuring support for wide range of configurations and applications

CLEARONE ANNOUNCES NEW BMA 360 BEAMFORMING MICROPHONE ARRAY CEILING TILE

ClearOne has announced its new **BMA 360**, the world's most technologically advanced Beamforming Microphone Array Ceiling Tile, delivering unequalled audio performance and deployment ease.

The ClearOne BMA 360 is the world's first wideband, frequency invariant beamforming mic array with uniform gain response across all frequency bands. With FiBeam technology, conference participants will experience the ultimate in natural and full fidelity audio across all beams and within a single beam.

Deep sidelobe beamforming, DsBeam, provides unparalleled maximum sidelobe depth, below -40 dB, resulting in superior rejection of reverberation and noise in difficult spaces for superb clarity and intelligibility.

The BMA 360 is based on a new approach to beamforming that provides a new beam topology to easily achieve distortion-free, full 360-degree coverage of any room shape and any seating arrangement using ClearOne Audio Intelligence.

Further advancements in adaptive steering provide impeccable coverage of each conference participant as well

as support for camera tracking.

In addition to the advancements in beamforming technology, the 6G Acoustic Echo Cancellation (AEC) delivers unmatched per-beam full-duplex audio performance. On-board audio algorithms, like noise reduction, filtering, and Automatic Level Control, eliminate the need for per-beam processing in a DSP mixer - requiring fewer DSP mixer resources.

Finally, robust built-in amplifiers,

ologies, FiBeam, DsBeam, and 6G AEC combine to create VividVoice, a significant advancement for professional conferencing.

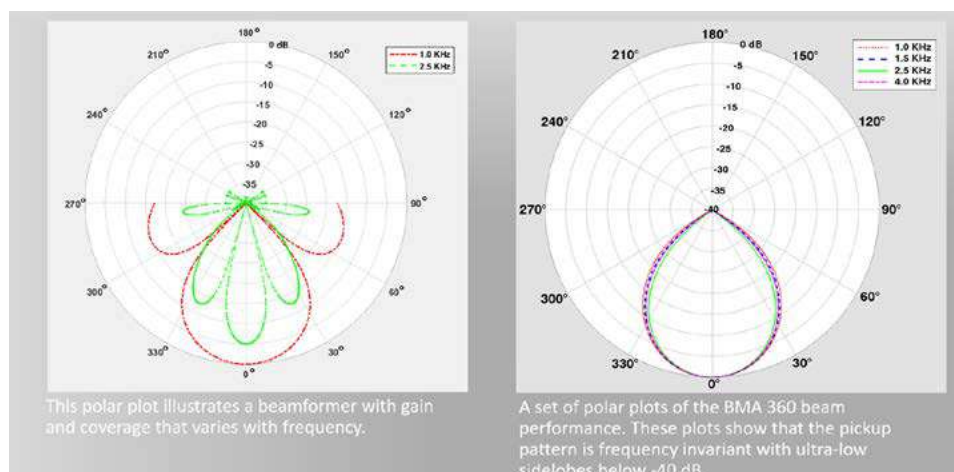
The integrated features in the BMA 360 significantly reduce system design complexity, simplify installation, consume less rack space, and lower system cost. The BMA 360 also supports daisy-chaining of up to three ceiling tiles via P-Link for divisible rooms, or larger conference setups – for

Simple, single-workflow configuration is provided by a new release of ClearOne's CONSOLE AI software. Competing products require practitioners to program multiple system components with different toolsets: Ethernet switches, ceiling tiles, DSP mixers, and the Dante controller.

“We introduced the world's first professional conferencing beamforming microphone array in 2012 and it revolutionized the conferencing microphone

in the Pro AV industry. Since then, we have introduced a diverse line-up of beamforming microphone array solutions to meet evolving market applications, performance, and pricing needs,” explains ClearOne CEO and Chair, **Zee Hakimoglu**. “And with the new ClearOne BMA 360, we have pushed the envelope again by developing a product that is superior to any other competing product in the market.”

The BMA 360 supports three different ceiling grid sizes: 24 in, 600 mm, and 625 mm. It incorporates a VESA-standard hole pattern that supports pole mounting. Hard-ceiling mount accessory kits are also available. The BMA 360 is now shipping worldwide.



ClearOne comparison frequency invariant beams

configurable as 4 x 15 Watt or 2 x 30 Watt, provide flexibility for driving loudspeakers.

ClearOne's breakthrough technol-

ogy, simpler wiring, longer distances, and lower-cost deployments compared to networked “home-run” connections via Ethernet.

BLUESOUND PROFESSIONAL LAUNCHES BSW150 POWERED SUBWOOFER

Bluesound Professional, the premium distributed audio ecosystem for commercial spaces, announced the launch of the **BSW150 network active subwoofer**. The BSW150 adds powerful, deep bass to any wired or wireless Bluesound Professional system and features the convenience of precision BluOS app control. The BSW150 will be available in both black or white finishes.

The Bluesound Professional BSW150 is a network active subwoofer with streaming capability designed specifically for use in commercial installations. Designed to fit neatly in boardrooms or small commercial establishments, this compact subwoofer digs deeper and plays louder than its bulkier rivals. With several clever installation options, the BSW150 can be easily positioned to fit perfectly into the location of choice.

The subwoofer features a 8" LF driver

powered by a high efficiency amplifier including a low power standby mode.

The frequency response of the subwoofer is 22Hz – 150Hz. Inbuilt DSP allows for equalization as well as other audio processing. Access to content is via wired ethernet or WiFi for glitch-free streaming.

Control of the speaker can be accomplished by any Windows/ Mac computer as well as any iOS/ Android phone or tablets, the Bluesound Professional

CP100 wall mount controller and many third-party control systems. Customize

volume, crossover and phase control directly in the BluOS Controller app.

Security provisions prevent any unauthorized control of the system. The BSW150 is available in black or white finishes.

"At Bluesound Professional, our focus is to combine exceptional sound quality with unique flexibility and convenience for both the installer and their customers", explained **Graeme Harrison**, Vice President and General Manager for Bluesound Professional. "Of course, reliability of the components as well as the BluOS operating system is also paramount so the brand is all about testing and continuous improvement."



RCF EXPANDS BUSINESS MUSIC RANGE WITH NEW PRODUCTS

The **RCF** catalog significantly expands the installation range, assisting the architect and installer with application-focused series installation products conceived for both background and foreground music. The line-up marks a new standard for all applications that require high-quality music reinforcement with a scalable and flexible architecture. Business Music range is the perfect solution for small to large installations, distributing several audio feeds in multiple environments, each with specific volume and equalization needs. The target application range is extensive and varies from retail stores to bars and restaurants, meeting rooms, education or public facilities, and in general, to any A/V application. The line includes amplifiers, DSP, microphones, and speakers, combining uncompromised sound quality, full processing features, and easy configuration.

Amplifiers feature incredibly compact size (1/2 rack unit width and 1-rack unit height), making them ideal for both desktop or rack installation with

the optional accessory. Their accurate design represents a crossover point between professional and consumer markets with contemporary style and environmental robustness (IP 30 protection grade and high-efficiency thermal dissipation). There are two Digital Mixer Amplifiers models, the DMA 82 (2 x 80W) and DMA 162 (2 x 160W), combining a powerful Matrix/DSP platform with recallable speaker presets. The OLED front panel makes the setup extremely user friendly. Configuration can also be performed via the RCF universal RDNet software, using the optional board. At the same time, it's also possible to control some of the device features from third-party systems via serial protocol. DMA can distribute four audio channels to satellite DMA-P units, allowing easy installation and scalable architecture.

With on-board digital signal processing, the DMA

162P (2 x 160W) amplifier increases the installed power in a multi-room architecture. One analog stereo input and four-channel Bus (via CAT5 cables) can be routed to power outputs via DIP switches. DSP configuration and presets only via RDNet. Each unit can receive four mono or dual stereo channels from the 4-channel audio Bus, with a local stereo input as an alternative. Line output for the subwoofer is also available.

Expanding the features further are the RC 401 Remote Control and the BM 404 Paging Console. They work in conjunction with the DMA units. RC 401 offers Volume Control and Source Select; BM 404 Microphone base can manage up to four zones, with up to four paging consoles connected in a daisy-chain fashion, interlocked.

Speakers for Business Music applications offer an acoustic performance inspired by RCF's top-of-the-line professional products with high-value industrial design features. MF 33EN is a discreet ceiling speaker designed for

recess installation in false ceilings or panels, with a 100°x160° coverage angle for both 8 ohms and constant voltage lines. For horizontal or vertical wall-mount installation, the WMF 33EN speaker is available. The self-extinguishing EN54-24 certified enclosure and the highly intelligible voice reproduction make it also perfect for voice-alarm and evac messages. Surface mount Monitor speakers - the MR 40T and MR 50T (in either white or black self-extinguishing plastic cabinet) - are 2-way bass reflex speakers for high-quality background music reinforcement, available with or without line transformer.



RCF adds new products to Business Music Range highlighting new amplifiers, DSP, microphones and speakers

QSC AND THEATRE CONCEPTS BLANKET THE LARGEST AUDITORIUM IN SOUTH INDIA'S ADIPARASHAKTHI COLLEGE GROUP WITH PERFECT SOUND

Established in 1978, the Adiparashakthi Charitable Medical, Educational, and Cultural Trust (ACMEC) operates major educational and cultural centres across the state of Tamil Nadu. Among them is the Adiparashakthi Agricultural and Medical Colleges, where a 1,200-seat auditorium hosts live performances and spiritual gatherings as well as educational events.

When the trustees needed a sound system worthy of the impressive hall, systems integrator Theatre Concepts crafted an end-to-end QSC solution comprised of twenty **WideLine10 line array loudspeakers** supported by ten **PLD Series power amplifiers**, eight **K12.2** and four **K8.2 active loudspeakers**, and a **TouchMix-30 Pro digital mixer** for front-of-house. The house, control room, and a rehearsal room are interlinked via the Q-Sys audio ecosystem, including a **Core 110f processor** and **I/O-8 Flex audio input peripheral**.

"Picture 1,200 people sitting in one place, with the goal of having a common spiritual moment," says Theatre Concepts' **Harry Martin**, who designed and supervised the installation. "To ensure that everyone has the same experience in terms of sound, the auditorium really needed an excellent line array system." While line arrays are a go-to solution for ensuring uniform sound levels from the front of a room to the rear, Harry is quick to point out that the side-to-side coverage was just as important in

this venue:

"This auditorium is very wide, about 150 feet," he says. "That's the first thing that drove us towards the **WL2102-w loudspeaker** from the WideLine 10 Series, because it has 140 degrees of horizontal dispersion. This helped us eliminate any blank spots from one side of any row to the other. With a point-source system, there's no way we would have been able to calibrate things so precisely and do such a perfect job of

so for the arrays on either side of the stage, we were able to fit all the power we needed into just one rack. Then there's all the DSP in there, which is designed to work with the WideLine loudspeakers. The FAST [Flexible Amplifier Summing Technology] distributes all the amps' power to all the loudspeakers ideally, and the result is excellent sound quality throughout the auditorium."

Theatre Concepts hung eight WideLine 10 boxes on either side of the

describes. "We placed some of the K12.2 as front fills — we call it the 'lip fill' because it's right at the lip of the stage. The remaining K12.2s and K8.2s are stage monitors."

Another challenge was balancing audio coverage with visual aesthetics, for which more WideLine loudspeakers — in an uncommon location for array loudspeakers — proved useful. "With 140 degrees of coverage, we didn't want to place



QSC and Theatre Concepts install WideLine10 line array loudspeakers at Adiparashakthi Agricultural and Medical Colleges

eliminating dead spots."

Both the compact size and built-in DSP of the PLD Series amplifiers made them an ideal choice to power the WideLine arrays. "We had very little space to put in power amps, just an alcove below the media pit," explains Harry. "The PLDs are four-channel amps,

stage, but their acoustic analysis discovered a couple of areas that still needed filling out. Their solution began with K.2 Series active loudspeakers at the front of the stage:

"Even with the great performance of the main arrays, we also needed to fill in the first fourteen or so rows of seats," he

the arrays in the very corners," says Harry. "Yet, moving them too far in towards the centre created an obstruction the client was unhappy with. The ceiling is about 42 feet high and the top cabinet needed to be hung four feet down from there. The client felt that the bottom cabinets would interfere too much with the audience's vision." Harry and his team placed four more WideLine 10s at the center of the rear of the auditorium, on a delay. This provided two benefits: coverage in the very back plus supplemental fill down the centerline of the room, which allowed him and his team to "position the front arrays so that the client was happy."

Compared to the sort of mixing board one might expect to see in such a venue, the TouchMix-30 Pro is quite compact. For Harry, the small size still meant big capability: "Many of the cultural and spiritual events there have live music," he



Systems integrator Theatre Concepts crafted an end-to-end QSC solution with line array loudspeakers, power amplifiers, active loudspeakers, digital mixer and Q-Sys audio ecosystem

(Continued on page 27)

QSC AND THEATRE CONCEPTS BLANKET THE...

(Continued from page 26)

says, "We might have fourteen or more microphones at once, for starters. Also, the client wanted a fool proof system and didn't want to need a technical expert on the property at all times. When we showed them the TouchMix, with the recall for different scenes and the 'wizards' for setting up inputs and such, its ease of operation was one of the tipping points that convinced them to go with QSC for the entire system."

The final tipping point was Q-Sys, QSC's scalable, secure architecture for routing audio, video and control over Ethernet. "They wanted recording, monitoring, connection with the rehearsal room, and again, they wanted it foolproof," Harry continues. "We could provide all that with Q-Sys. First of all, we told them it's Layer 3. That means it's compatible with whatever existing network and IT systems they have — and they had a lot already, like lighting control and building automation, all

that sort of thing. Other products work on Layer 2, which means you'd need to build a separate network for the audio." All these QSC attributes were the reason that Theatre Concepts won the job over 12 other bidders.

When officials at Adiparashakthi heard the system for the first time, the results spoke for themselves. "They were extremely happy," Harry enthuses. "They had already listened to and worked with a lot of other systems on their properties in different locations.

They walked around the room, listening carefully, and could not find any dead spots. They were very happy with the quality of the sound. The client ultimately described it as a mind-blowing experience. For me as an integrator, QSC has been my go-to since it was introduced in India about ten years ago. I was a distributor, so I'm familiar with it. I love the design, the reliability, the sound quality, and the support of the QSC team here. It gives me a lot of confidence."

SYMETRIX ANNOUNCES EXPANDED CONTROL SOLUTION - SYMETRIX IN CONTROL

Symetrix has announced their expanded control solution, **Symetrix In Control**. With Symetrix In Control, users have more control from the same processor with the freedom to design, display and deploy tailored user experiences and system control solutions.

After releasing the T-5 Glass Touchscreen remote and the W Series IP remotes this year, the addition of Lua Scripting in Symetrix Composer 8.0 software completes the Symetrix In Control Solution. Everything needed to get started is available on the Symetrix website for instant access to control with no additional fees or licenses.

SYMETRIX IN CONTROL

Users are in control with Symetrix's free, out-of-the-box solutions. Whether programming a small restaurant or a 50,000-seat stadium, the Symetrix control solution allows complete system control without complicated programming.

ARC-WEB is an out-of-the-box virtual user interface that can be used on a smartphone, tablet or PC as a stand-alone primary control system or as an addition to other Symetrix control hardware. ARC-WEB can control presets for volume, mute, and source selection for any application.

The Web-Based Event Scheduler is a free addition to the Control Server allowing access to events and scheduled presets by time and day, providing a way to automate routing, source selection and volume for daily changes, special events, holidays or other automated configuration changes. The Web-Based Event Scheduler is accessible from the Control Server using any web browser on a connected smartphone, tablet or PC.

No other DSP platform offers the range of free, simple system control options available from Symetrix products through a simple web browser.

SYMETRIX FULL CONTROL

Symetrix enables users to take full control of their AV systems processing, programming and integration with the cutting-edge tools. Design and display unique system control interfaces for elevated user experiences.

SymVue control software offers control with rapid GUI authoring including full control over colors, fonts, custom symbols and graphics to satisfy the user's exact requirements. Parameter changes and indicators on all control devices are kept in perfect synchronization and work alongside Symetrix ARC remotes, W Series remotes, ARC-WEB and other 3rd party control systems.

T-5 Touchscreen remotes provide access to custom SymVue control screens created for the user's system. Programming for a restaurant, for example, can begin by adding a Symetrix T-5 Touchscreen to the user's design file. Once the user adds the T-5, create their interface for the bar zone with selector

and volume control. Then create a second screen for the patio area, link them both together, and export them to the T-5 as a SymVue screen.

SYMETRIX, MORE CONTROL

Intelligent Modules provide even more control from the same Symetrix DSPs. Symetrix's mission is to reduce the complexity of the user's system by increasing the value of their signal processor and eliminating the need for any unnecessary hardware and programming. Symetrix Composer 8.0 unlocks unlimited Intelligent Module creation and use with no additional fees.

Lua scripting allows user to create custom Intelligent Modules for Symetrix Composer 8.0, providing solutions for tasks as simple as handling a fire alarm system mute, more complex tasks like changing camera positions based on detected audio levels in a city council chamber or any other control task within a system.

RENKUS-HEINZ APPOINTS KARAN KATHURIA WITH FOCUS ON ASIA, OCEANIA AND SAARC

Renkus-Heinz, manufacturer of premium professional loudspeakers, have appointed **Karan Kathuria** to the position of Director operating across Asia, Oceania and SAARC. The role will see Kathuria evolving these regions through the introduction of Renkus-Heinz technologies to the Pro AV community — including consultants, integrators and end users.

"One of the biggest reasons for me joining Renkus-Heinz is the company's inclination toward cutting-edge technology," Kathuria said. "This is a company that understands and appreciates the mechanics and physics of sound at an incredible level, which enables it to

address inevitable acoustic challenges across various applications."

Kathuria's professional background includes engineering, sales, operations and marketing roles with renowned organizations, including Bose, Harman, and MUSIC Tribe. His most recent position was Senior Director at MUSIC Tribe — a position he'd held since 2015.

Kathuria said the coming months will be a critical time for pro audio as it plays a role in the world's return to physical workspaces. Kathuria believes adding Renkus-Heinz solutions to more projects will result in more collaborative — and safer — environments across the globe.



Karan Kathuria

"We need to give people the right setup to return to professional and personal environments, including corporate spaces, schools, houses of worship, sports facilities, large venues and more," Kathuria said. "I believe there is a huge opportunity to unleash the power of Renkus-Heinz into different verticals."

"Karan brings a wealth of experience and he will play a critical role in strengthening our presence in the Asia, Oceania and SAARC territories," said **Karl Brunvoll**, VP of International Sales for Renkus-Heinz. "Karan is a tremendous resource, and we're excited to have him on board."

MAAMOUCHE'S ALCHEMY TERRACE BAR OUTFITTED WITH BETA3

Maamouche's Alchemy Terrace Bar is an innovative rooftop resto bar on the 5th floor of The Starling Mall in Noida. It was installed in August 2020 with Beta3 MU Series Wood Speakers to provide exceptional sound quality and coverage throughout the space.

The terrace bar has a stylish décor and lively ambiance with a rustic looking bar area and walls that have exposed brickwork and a large outdoor terrace. Beta Three Audio India, a company that specializes in the sale and service of pro audio equipment across India was tasked with the design and integration of the sound system for the resto bar.

The initial brief given to the SI was to provide its patrons a rooftop bar for lounging, with good quality

speakers for playing soothing music without pinching the pockets.

The Sound System

Since the Resto bar is an open space, there was no special acoustic layout required. Beta3 designed a tailor-made sound system using their Ease Software, focusing on providing impactful audio with even coverage throughout. Beta3 MU Series Wood Speakers teamed up with the Subwoofers to form the core of the sound system.

The full speaker system comprised of two MU10a speakers for the main entrance, two MU8a speakers for the sitting area, four U6a speakers for the terrace and one MU18a subwoofer below the bar counter.

Beta3's Ankit Raj commented, "The MU Series Wood speakers are the best loudspeakers for this kind of a setup.

The speakers offer high output with a smooth frequency response keeping the clarity and quality of the audio."

Ankit continued, "The MU Series Speakers we used across the resto bar not only gives amazing sound but are extremely efficient and reliable."

Challenges

Due to the venue being located in a mall, Beta3 had to ensure there was minimum disturbance to the other stores in the mall. Beta3 carried out a full design study to minimize the effect of the sound on the surrounding area.

"The challenge we faced was that the interior had already been done and the client did not want any damage to be

Equipment List

Equipment (Name & Model)	Quantity	Area Installed
Speakers		
Mu10a	2	Main Speaker
Mu8a	2	Inside Sitting area
U6a	4	Outside (Terrace)
Subwoofers		
MU18Ba	1	Below Bar Counter

done to the interiors," informs Ankit.

Another challenge the team faced was hanging the speakers as there was a bar counter below it. Also, in the open space (Terrace area) the speakers were to be given proper cover in order to protect it against the elements.

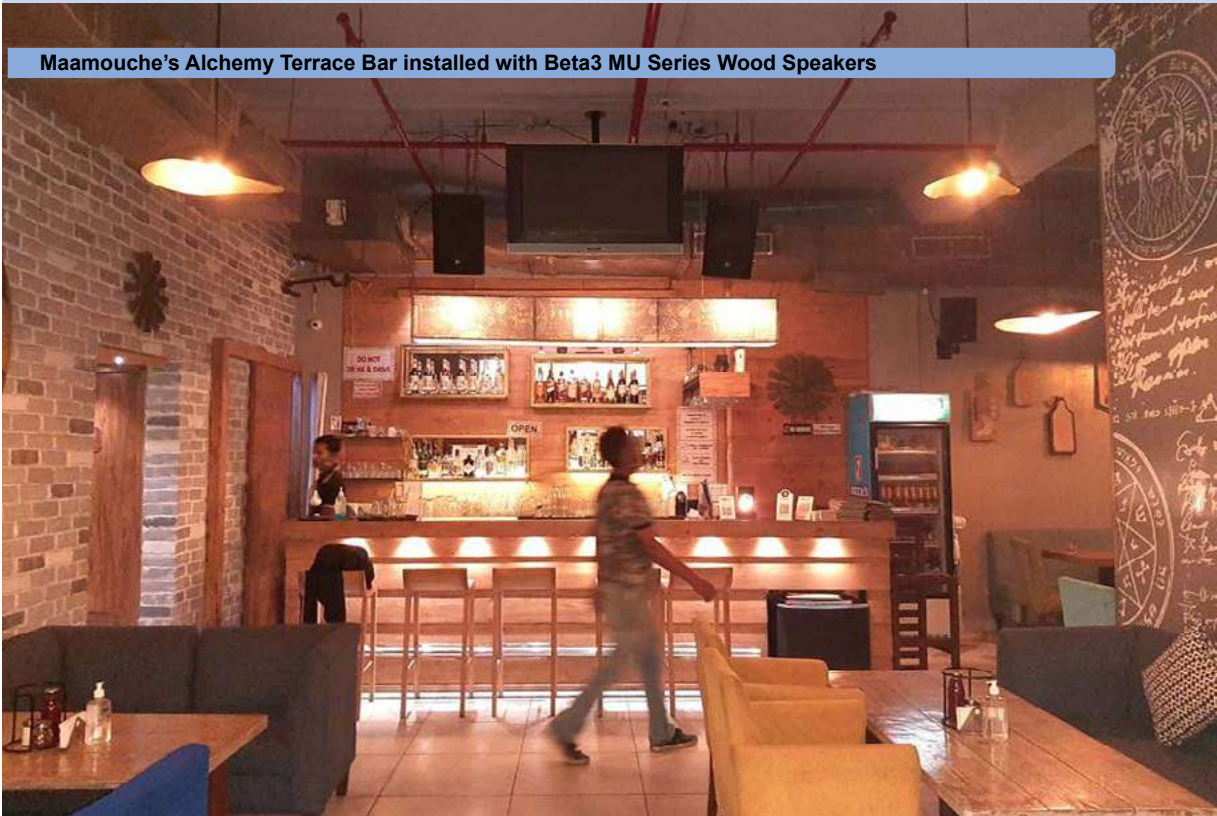
Conclusion

For this entirely new setup, the owners of the Maamouche's Alchemy Terrace Bar contacted Beta3 directly. "The client had seen our work for other rooftop bars and cafes, hence they approached us to replicate the same with their venue as well," recalls Ankit.

For the Beta3 team it took them only two days and two nights to complete the entire set-up as the requirement was only for a smooth sound system.

Ankit concluded, "The client was surprised at the quality of sound that we gave them and that too without burning a hole in their pocket. It was real value for money for the client."

Asked about the client's reaction to the sound system, Ankit added, "The tonal quality of speakers was something that pleasantly surprised them. The client was thankful for the quality of the wall mountings as they were sturdy and did not cause any damage to the interiors."



FULCRUM ACOUSTIC RELEASES NEW COVERAGE PATTERN FOR AH HIGH OUTPUT COAXIAL HORN

Fulcrum Acoustic, creator of innovative loudspeaker technologies, has released a new coverage pattern for their AH series of High Output Coaxial Horns.

The AH66 is a bi-amplified 2-way, high sensitivity, arrayable coaxial horn loudspeaker that provides a precise 60° x 60° pattern with control to below 400

Hz, low frequency extension to 75 Hz, and extremely high output with modest amplifier power.

The unique Compression Head horn architecture of the AH series provides exceptional low frequency loading to its twin 10-inch low frequency compression drivers, while a pair of Oculus phase plugs extends

the 10s' high frequency response to smoothly mesh with a 4-inch diaphragm high frequency compression driver. The AH66's unique 60° compact trapezoidal shape allows it to be mounted very close to ceilings with minimal effect on sight lines.



DPA MICROPHONES UPGRADES 4098 GOOSE-NECK MICROPHONE TO INCLUDE CORE

DPA Microphones recently upgraded its renowned **4098 Gooseneck Microphone** to include its CORE by DPA technology. With this update, the 4098 CORE mic will join DPA's other CORE products in offering minimal distortion across the entire dynamic range, increasing audio clarity and openness and further enhancing DPA's already stellar sound. Perfect for both podium and conference room mic'ing, the DPA 4098 CORE is the ideal solution for instances when high speech intelligibility is paramount.

"When we first launched CORE by DPA, we knew we wanted to implement this technology into all DPA mics to provide an even great-

er user experience," says **René Moerch**, Product manager at DPA Microphones. "By increasing the dynamic range of the mics, CORE by DPA extends the point at which the distortion is just starting to become audible. Incorporating this technology to the 4098 allows presenters, politicians, pastors, instructors, and more, to be heard through the mic as though they are speaking to the viewer/listener directly."

With CORE by DPA technology, the 4098 CORE mics capture a wider dynamic range so that the 1 percent THD is now lifted with 8 dB to 133 dB SPL.

Best suited to the installation market, the DPA 4098 CORE offers trouble-free installation with the most clear, transparent and natural sound available on



4098 Gooseneck Microphone

the miniature mic market. The mic is capable of handling extremely high SPL before clipping, which enables it to deliver pristine speech intelligibility regardless of whether the speaker is loud

or soft-toned. With a linear response, low distortion and extremely large dynamic range, the mics perform well in even the most challenging environments.

AMATE AUDIO INTRODUCES NEW FLAGSHIP POINT SOURCE SYSTEM

Amate Audio has revealed its new flagship point source series.

The **X102FD** has been developed to offer a powerful and highly efficient point source alternative to line arrays, in medium and smaller size application environments. Capable of power and performance far in excess of its compact form, the V-shaped geometry cabinet, features a symmetrical dual 10" LF driver arrangement with a 3" titanium diaphragm, 1.4" neodymium HF driver and aluminium rotatable horn. With an Active+ integrated power and DSP control platform producing 3000 W of 2-way amplification, the X102FD is capable of 136 dB SPL continuous output.

The X102FD offers customers a ready phase-aligned full-range 'plug and play' sound system, that will deliver a lot of power without the need to move a lot of weight. In terms of costs of purchase and operation, manpower and time-scale efficiencies, it is far ahead of any line array solution for venues and events of up to 1000



New flagship point source series 2x 10" system outperforms up to four small-format line array elements in medium venue applications.

people.

The X102FD is able to be deployed in both vertically and horizontally, due

to its rotatable horn with a simple 'no tools required' pull, turn and release mechanism. In vertical FOH applica-

tions the horn provides (HxV) 80 x 60 dispersion (in its default position). In the horizontal plane – for applications such as front-fills within a large-scale line array system, or close to ceiling hanging in an auditorium – quick rotation of the horn maintains (HxV) 80 x 60 dispersion. Likewise, (HxV) 60 x 80 coverage can be obtained in either plane.

Unique to Active+ is the rear-mounted rapid operation 3.5" TFT colour touchscreen GUI that provides for system configuration of individual cabinets prior to stacking or rigging. This combines user-configurable system management parameters and powerful R&D developed application-specific system pre-sets that provide for near-instantaneous setup of the most common cabinet configurations in the most regularly encountered applications. Remote Ethernet or wi-fi control is enabled via Amate Audio's DSPStudio application. Active+ also provides Dante audio networking on the X102FD, via the two rear-panel Ethernet ports.

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OCT 2021					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				OCT 2021	
NOV 2021	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30									NOV 2021	
DEC 2021			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							DEC 2021
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SoundFrame gives **LOTD** an exclusive Harman Professional Audio System finesse

SoundFrame recently outfitted Lord of the Drinks' Kolkata location with a complete Harman Professional Audio System to provide exceptional audio quality and coverage for its patrons. PT brings an exclusive case study.

With 12 outlets across India, Lord of the Drinks (LOTD) is undoubtedly one of the most highly rated nightclubs in the Country. When LOTD finally opened its 11th outlet in Kolkata at South City Mall end of 2019, it boasted of the tallest bar



Lord of the Drinks, Kolkata, installs HARMAN Professional Audio System to provide exceptional audio quality and coverage

ever. The approximately 2,000 square feet area has been astutely used to accommodate the indoor seating, as also the now famous 24-feet tall bar high double-height bar, which is 40 feet long and features an upper stage for the bartenders and a lower stage for patrons to enjoy their drinks.

The new fine dining lounge and bar that becomes a high-energy nightclub in the evenings, evidently demanded a state-of-the-art sound system that would provide superior sound quality and coverage for patrons without distracting from the aesthetics of the elegant design, for which LOTD roped in Electro-Acoustic Design Consultant, **Milind Raorane** of **SoundFrame**. Since the franchise had already worked with Milind and his team on their previous projects, the owners were confident to continue with SoundFrame at the Kolkata venue too.

Sound Isolation and Acoustic Design

Being located in the Food court of the South City Mall and having other

occupants around it, the first challenge for the acoustic consultant, was to isolate the sound from the mall while adhering to the design plan of LOTD, and eventually deliver a fine immersive club kind of sound.

“When designing a restaurant or a bar, the acoustics of the place is rarely taken into consideration. Most of the times restaurants located in a busy shopping complex or mall do not undertake a proper study of the acoustics of the area and only implement slight fixes. This results in acoustical consultants facing a myriad of obstacles when asked to provide design guidelines for planning the venue. The mall management does not always offer a free hand to the acoustic consultant to make many changes,” rues Milind.

To understand how to isolate the entire space, SoundFrame conducted some acoustic tests, to understand the structural conductions and understand the intensity of sound that was travelling to other floors of the mall. After preparing the basic report, the team came up with multiple possible solutions, and finally zeroed in on a midway solution where a floating floor was created which is typically unusual

for clubs in a mall.

“Constructing everything in a mall, there are a lot of limitations to add load, or to make any structural changes. It is much easier to implement and design in a standalone property, but being a mall, you are working under a lot of restrictions, additionally the mall themselves do not have a lot of permissions from local authorities in order to make such heavy changes,” says Milind.

Upon visiting the location, it was found that the space had to be closed acoustically. The space was divided by a thin dry brick wall and had a glass pane in front of it. Since the mall had load limitations, the team at SoundFrame had to work with modern, low weight, low density techniques of creating false floors and false walls. The team used Modi Foam which is a new technique of creating dry flooring and dry walls using polystyrene foam.

Inside the space, Milind says they insisted to go for in-room acoustic conditioning, which means adding acoustic elements to make the internal sounds comfortable. After going through several options, acoustically perforated ceilings and foam panels were chosen to condition the space and to get a good



Sound Frame installed four AM721595 loudspeakers to provide even balanced coverage throughout the main dining area



Key parameters for selecting the sound system for LOTD were good base energy, directivity and sturdiness. Loudspeakers which were tonally well refined and had a wide directivity pattern were chosen for the venue

sound. Double isolation walls, demising walls, acoustic glass were created because the whole facade of the club was glass pane and glass doors.

"We had the drawing in front of us and using the drawings we did some simulations using different software to see what it would look like acoustically. The design, the architect gave us had all these aspects of mirror, glass, chandeliers etc. and the proportions and the placements were working out in such a way that I did not really have to object or change it," informs Milind. "LOTD was open to the idea of doing acoustical treatment on the ceiling. The idea was to create minimal amount of absorption

in the room with respect to the other surface materials in the room," he adds further.

"LOTD being a chain has a lot of the SOPs in place. Once we submitted all the drawings and details, everything was pretty much well-coordinated," said Milind.

Sound Brief

Though LOTD wanted a high-energy place, which on the weekends could host resident or guest DJs as well as live music, their brief was to create a resto-bar with all-day background music, and not just a night-club. They were looking for a system that would be able to double up as a live sound playback system.

Due to space constraints, the stage is elevated to almost a mezzanine level and the DJ is housed in that area too. A band can also be placed in the same area or alternatively there is also a provision for the band to play on the floor within the club.

Locating and providing a high energy base was the key so that it could stand up to any kind of demands in the space. Also, the electronics that were to be used had to be highly sturdy so they could word round the clock.

"The client requested a versatile solution that could deliver superior sound through the venue. The JBL Professional networked audio system we installed ensures class-leading tonal quality,

power response and sustainability. This dynamic setup provides the clarity and volume required in full-house scenarios," said Milind.

"The franchise owner did provide some inputs in terms of what brands they would prefer and their layout preferences," he adds.

Sound System Layout

It was imperative that Sound Frame worked around the height of the space as well as an elevated DJ booth and bar seating. They also had to ensure that the sound system would not obstruct important decorative elements on the walls, a request from the designer of the space. To accomplish this, Sound Frame worked within the space restrictions and negotiated with the Lord of the Drinks' designer to situate the sound system suitably. They were able to carve out space in the smoke lounge for the main front of house subwoofers and loudspeakers were set in place via a steel-rope suspension method rather than traditional wall mounts.

For the main Front of House, base boxes subs were embedded into the smoking room, instead of the usual way where it would end up taking the usable guest area floor space. The subs were tucked away into the smoking room which is below the DJ. The rest of the speakers were placed in a circular form so that patrons sitting anywhere in the space, would not have speakers

hitting them directly and instead would give them an enveloping experience in whichever area they were.

"We don't generally fly subs in clubs; we prefer to keep them on the floor for listening for alignment purposes. But here at LOTD in Kolkata, we flew them up and it still worked well. It did not really go completely out of space," said Milind.

"The objective was to create an immersive audio because instead of the usual two front speakers and two back speakers kind of approach. The focus was to give a more cohesive sound experience, where it feels like there is a larger space of sound rather than something that is right next to you. For this kind of approach, the speakers were taken far away and use a greater number of speakers and subs so that the sound is distributed equally and in its entirety."

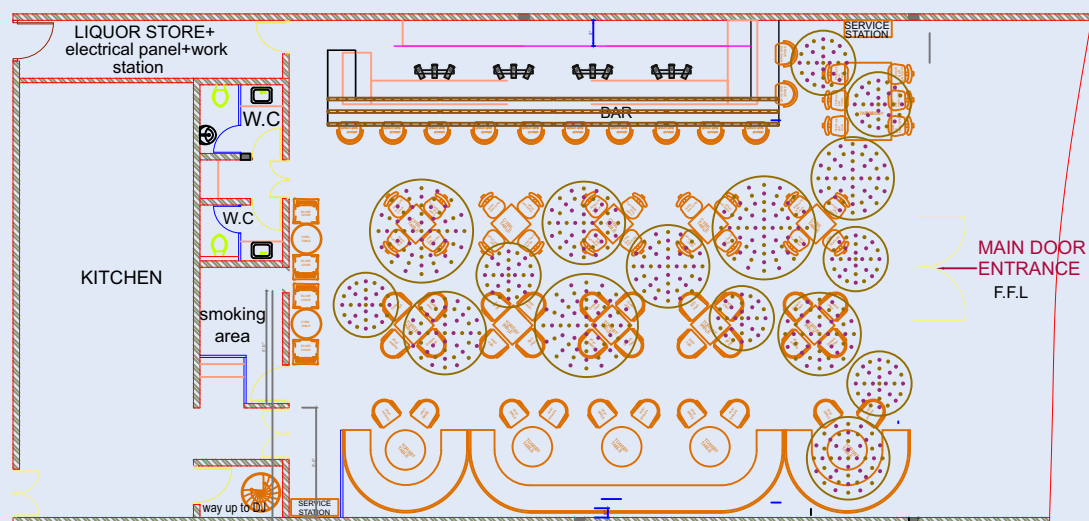
He further continued, "The idea I wanted here was to create an immersive kind of experience, because if you see the general trend everywhere in live sound for performances as well as playback and cinema everything is moving towards immersive."

Inventory

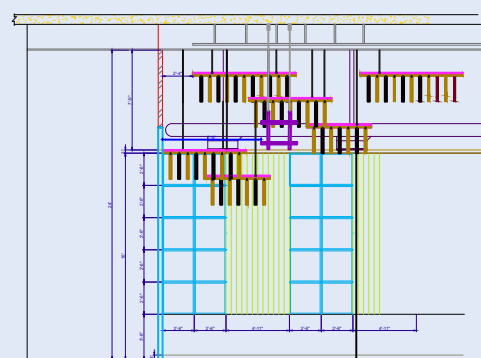
The three key parameters for selecting products for LOTD were energy, directivity and sturdiness. Commenting on his choice of Harman Professional Audio System products, Milind says, "It



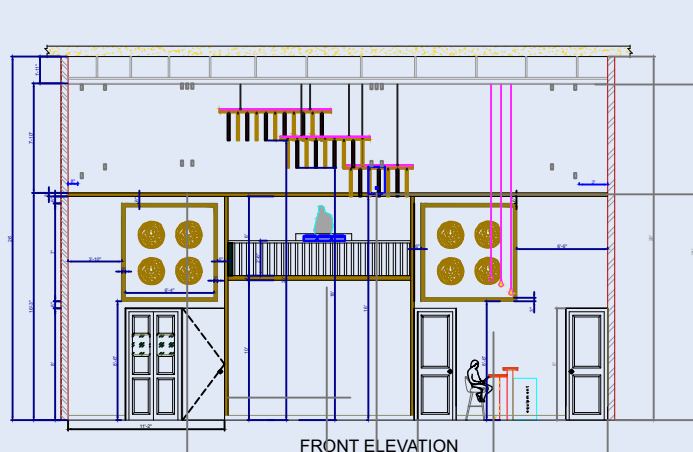
Milind Raorane, SoundFrame



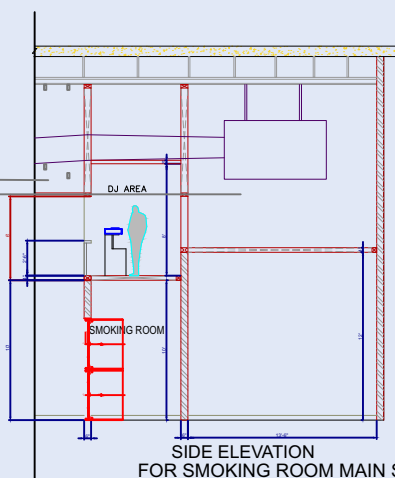
FLOOR PLAN VIEW with EDISON BULB CHANDELIER IN RCP VIEW



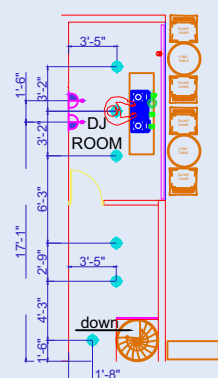
SECTION VIEW FOR HANGING (ROPE-SUSPENDED) SUBS @ ENTRANCE SIDE. (TYPICAL)



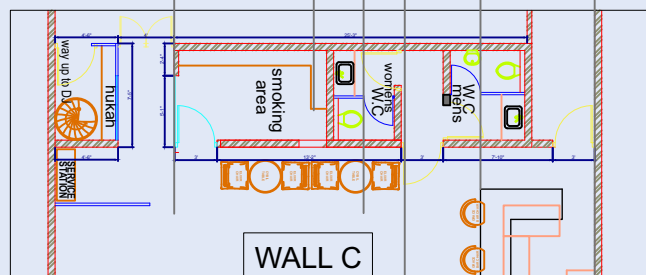
FRONT ELEVATION



SIDE ELEVATION FOR SMOKING ROOM MAIN SUB.



DJ BOOTH - PLAN VIEW



WALL C

PLAN

Figure 1. The area is divided into a DJ Section, a Smoking Section and a big space which acts as a restaurant, a bar and a lounge area. There is no separate bar section or a separate dining area or a VIP area. It is all embedded into one big space

had to follow the brief to have a good base energy. Since the area was not too big and not too small, the team had to select loudspeakers which were tonally well refined and had a wide directivity pattern."

"You need to use loudspeakers which have a very wide directivity pattern, which is a key in immersive audio.

The JBL Professional networked audio system we installed ensures class-leading tonal quality, power response and sustainability. This dynamic setup provides the clarity and volume required in full-house scenarios," he adds further.

LOTD and SoundFrame, had to consider brand presence, cost and availability for any kind of support required

in the future. Unlike, auditoriums, bars, restaurants and clubs work on a daily basis and the downtime is very short. For this, they needed a brand that would provide them a quick turnaround time and the client is not hassled in getting service support.

Selecting Harman Professionals for the sound of the location was not a very complicated decision for Milind. "Harman has the right products. They have been over the last two to three years focusing on their product range and have overhauled and made quite a few new products, to suit these kinds of varied applications. Additionally, they have a good support team, and a wider dealer network. So, for LOTD, they could easily purchase the products from Kolkata."

Sound Frame installed four **AM7215/95 loudspeakers** to provide even, balanced

coverage throughout the main dining area. Two **ASB6128 subwoofers** provide additional low-end support for powerful bass. Two **EON615/230 PA speakers** were selected for their portable size and Bluetooth control. A **Crown-DCI Amplification system** consisting of two **GDCI4X1250N-U-IN power amplifiers** and one **GDCI2X2400N-U-IN Drive-Core series amplifier**, chosen for their versatility and compact size, was also installed. These were tuned with a **BSS-BLU100 DSP 12x8 signal processor** with BLU link and a **DBX260V Drive Rack**

Audio Equipment List

BRAND	MODEL	QTY	DESCRIPTION
JBL	AM7215/95	4	MAIN LOUDSPEAKERS
JBL	ASB6128	2	MAIN SUBWOOFER
Crown	GDCI4X1250N-U-IN	2	AMPLIFIER
Crown	GDCI2X2400N-U-IN	1	AMPLIFIER
JBL	EON615/230	2	DJ MONITOR SPEAKER
BSS	BSSBLU100M-EU	1	LOUDSPEAKER MANAGEMENT SYSTEM
DBX	DBX260V	1	SECONDARY LOUDSPEAKER MANAGEMENT SYSTEM.

List of Project Partners

- Owner – AMIT HOSPITALITY LLP
- Acoustic Consultant - SOUNDFRAME
- System Integrator - SOUNDFRAME
- Audio System Provided by – HARMAN PROFESSIONAL

AC299_Top speaker FLY_mount with steel-rope cable suspension.

EIDOS118S Subwoofer placed flush in the DJ Console.

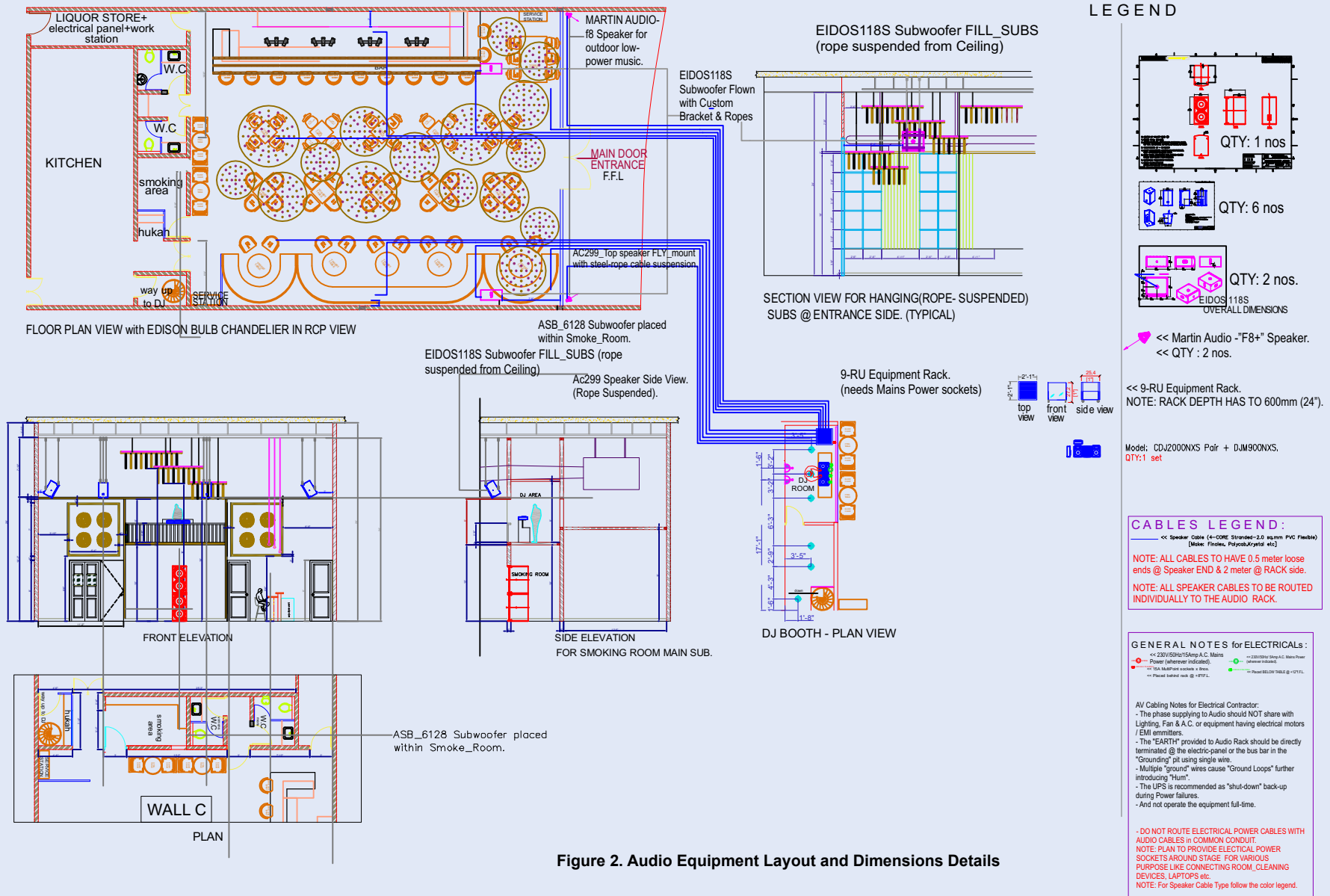


Figure 2. Audio Equipment Layout and Dimensions Details

loudspeaker management system.

"We were initially going to have another solution," said **Amit Bajoria**, Owner, Lord of the Drinks Kolkata. "However, we then met the team from HARMAN Professional Solutions who suggested the new JBL Professional AE Series speakers, which we ultimately chose. I am very happy with the sound system and its performance. We get loud and clear output from the speakers, and the subwoofers are amazing."

Challenges

For Milind Raorane, the biggest challenge was to isolate the noise from the resto-bar from going into the mall. "The mall had their own regular food court and other shops so the challenge was that being an all-day cafe and a high

energy bar in the night LOTD would obviously be creating a lot of powerful sound", he said.

The second challenge the team faced was the considerable height of the ceiling which was almost as high as 35 to 40 ft. A steel-rope cable suspension method was used to move away from walls and locate the speakers at the most optimum space, which would also allow minimum conflict with finished surfaces.

"It was a large space, around 2000 to 2500 square feet with a tall ceiling, so positioning things along with the decor lights was a challenge," informed Milind. He further added, "LOTD works with their internal design team. Also being a chain, the look and feel more or less is pretty much rationalized. They

have certain type of lights, certain type of wall finishes, which also created a lot of challenges for us when we were locating and designing the loudspeaker layout for them. They mostly wanted the floor to be free of bail boxes and not take away their revenue spaces."

Conclusion

The first design was submitted in August 2019 and the final install was completed in December of 2019, Lord of the Drinks, Kolkata was ready to welcome their patrons in the New Year of 2020. It took SoundFrame about a week to complete the entire setup.

Milind informs, "It was done in two parts. The first part was the prep work wherein all the mountings, wiring, cabling everything is done and kept

ready for the final install. Once the place completed its interiors and the air conditioning was ready to go, we finished the hardware install, setting up the loudspeakers and connecting them. So, it took us a week to complete the job."

It was the first outlet of the chain, where they did a variation. Unlike the other LOTD branches, the Kolkata branch is the only branch that took the immersive audio kind of approach for its given space. "It was a challenging project in terms of integrating the décor with the audio and acoustics. But it was definitely a smooth flow due to the SOPs being in place from the clients' end," says Milind.

"LOTD also was happy with what we ended up doing for them in terms of the whole layout," concludes Milind.

THE TECHNOLOGICAL INTERVENTION IN THEATRES AND AUDITORIUMS IN THE COVID-19 WORLD

The origins of theatres and auditoriums are unknown, however, its impact on culture is evident throughout the history. The earliest example of theatre is thought to have occurred in ancient Egypt. Ancient cultures in Greece, India, and China also had early forms of theatrical performance. Since a long time, theatres have remained an important art form for understanding culture and society. In today's time, modern playwrights use theatre to express opinions about current events.

To cater to a large audience, theatres and auditoriums must have technologically advanced sound solutions. Sound is related to emotion- and an immersive sound field creates a stirring emotional response in the audience. Their role has additionally shifted to alternate presentations such as live sports broadcasting, musical events like concerts amongst others. With these developments, challenges have also come into play. The requirement of the sound system and the infrastructure has changed. The speech, music, and special effects should be reproduced with the finest of the detail. Hence, the focus has greatly shifted to audio to deliver an immersive experience. These developments are triggered by the new surround concepts such as Dolby Atmos or 3D Aura.

Sennheiser has been a leading player in the pro-audio segment in India. For over 75 years now, the range of microphones, professional headphones, and wireless systems come with a mission of staying true to the sound and soul the art was given by professionals. With the wireless microphone to capture the purest sound quality for live performance, Sennheiser has been at the forefront of shaping the future of audio and has been actively participating in creating immersive products for a true listening pleasure. AUDAC too pays great attention to their multimedia sources with their development of cutting-edge digital technology. In this field, Xilica also has been a prominent name in the high-end audio processors that is essential to realise the potential of



Vipin Pungalia, Director - Professional Segment, Sennheiser Electronics India.

the next gen audio in theatres.

A great example of technology being used for theatres and auditoriums is that of National Theatre of Iceland where the theatre made a leap to digital with Sennheiser Digital 6000 series, acquiring 32Channels with ultra-compact SK6212 miniature bodypack transmitters. In this case, the Sennheiser Digi-

However, with the on-going pandemic, theatres and auditoriums are one of the most affected industries. Moreover, the threat of a second wave of the pandemic will make the future of the industry even more uncertain. Auditoriums have fallen silent as music festivals and dance performances across the globe have been cancelled. While major music and dance events, including The Coachella Valley Music and Arts Festival, held in California, have been postponed, Broadway shows in New York have been cancelled. In India, artists and organisers have called off concerts too. Mumbai-based National Centre for the Performing Arts (NCPA), Indira Gandhi National Centre for the Arts in Delhi, Rangashankara in Bengaluru, Ravindra Bharati in Hyderabad and The Music Academy and Hamsadhwani in Chennai have cancelled performances to encourage social distancing.

Today, these circumstances have presented us with an opportunity to create something innovative. It has challenged us to creatively think of a solution, so the audiences know what they have been missing during the pandemic, as things get better.

tal 6000 series rapidly demonstrated its value as it was an intermodulation-free RF technology that ensured a higher channel count with the most reliable & robust RF transmission even in very narrow frequency spaces. The system further helped deliver audibly better sound quality and a wider dynamic range, due to Sennheiser's patented Digital Audio Codec (SeDAC) technology. Further, the SK6212 transmitters are a very convenient option for theatres. They are so compact & small in size that you can hide them easily and so light in weight that actors sometimes forget that they are wearing them. Also, there is no longer a constant worry about batteries because the SK6212s last the whole day.

Today, these circumstances have presented us with an opportunity to create something innovative. It has challenged us to creatively think of a solution, so the audiences know what they have been missing during the pandemic, as things get better.

Theatres and auditoriums have been known to provide joy to people's lives. It brings people closer together to witness an event which might be funny, thought-provoking or mysterious- in turn influencing our perspectives in life. It is the ultimate medium for providing social experience and entertainment to the audience. By adapting and re-innovating the technological aspect, it will continue to draw the attention of the audience in the time to come.

READ

MACKIE RELEASES NEW ELEMENT SERIES USB MICROPHONES

Mackie has expanded its EleMent Series with a variety of new additions. The line of professional-quality mics first launched in January 2020 and continues to grow this fall with five new products: **EM-91CU**

Desktop Microphone Boom Arm, and **PF-100 Pop Screen**.

"The EleMent Series combines the qualities that Mackie is known for: studio-quality sound, affordability, and Built-Like-A-Tank construction,"

In addition to the new USB microphones, Mackie is also now offering their affordable **MC-100 Professional Closed-Back Headphones**, which were previously only available as part of Mackie gear bundles, as a standalone product that can be purchased separately.

Product Details

The **EM-91CU USB Condenser Microphone** can be used for content creation, online meetings, voiceover and music. This plug-and-play, rugged and reliable mic is built with a cardioid polar pattern to help reject unwanted sound. It also utilizes a USB connection and includes a cable in the box for studio and home studio recording. The EM-91CU has a sample rate of 16 bit/48kHz and comes with a shock mount.

The **Carbon Premium USB Condenser Microphone** is designed with legendary Onyx mic preamp circuitry, which provides crystal clear sound and ultra-low noise. The rugged construction offers five selectable polar patterns, including stereo, cardioid, bi-directional, super cardioid, and omni. The onboard USB interface plugs directly into a computer for fast, easy recording. The Carbon has a sample rate of 16 bit/48kHz and comes with a mic stand and USB-C cable.

The **Chromium Premium USB Condenser Microphone** features a built-in

2-channel mixer with instrument and stereo 1/8" inputs. The reliable, plug-and-play mic offers four polar patterns, including stereo, cardioid, bi-directional, and omni. Equipped with a built-in mixer stand, USB-C cable, and a sample rate of 16 bit/48kHz, the Chromium is engineered for recording music, podcasts, live streams, and online content creation.

The **DB-100 Desktop Microphone Boom Arm** is designed with sturdy steel construction to ensure easy and reliable attachment to any desk. The hook and loop straps included keep the cable secured and provide users with a cleaner look.

The **PF-100 Pop Screen** for EleMent Series Microphones eliminates low frequency pops and thumps for the best possible sound. The professional Pop Screen keeps signal levels more consistent for higher quality sound.

The **MC-100 Professional Closed-Back Headphones** bring the signature Mackie headphone sound and build quality into an even more affordable price point. Lightweight yet sturdy, MC-100 headphones are the perfect companion for EleMent Series USB Microphones creating an affordable, professional setup.



Mackie EleMent Series USB Microphones

USB Condenser Microphone, Carbon Premium USB Condenser Microphone, Chromium Premium USB Condenser Microphone with Build-in 2-Channel Mixer, DB-100

said **Craig Reeves**, Product Manager at Mackie. "and now this great microphone series offers even more versatility and choice for musicians, content creators, educators, and beyond."

ALCONS AUDIO EXTENDS STUDIO AND RESIDENTIAL SOLUTIONS WITH SRHV/9040 SYSTEM

With the **CRMS-SRHV/9040**, Alcons Audio extends her solutions portfolio in the studio, screening-room and residential markets. The CRMS-SRHV is designed as very compact reference main / screen system – or larger surround system in immersive sound-for-picture applications.

The system features Alcons renowned signature-sound, based on the Alcons pro-ribbon driver.

The amplifier-efficient 2-way passive-filtering crosses a vented 8" mid-bass driver with the RBN401 pro-ribbon driver. With a lowest-usable LF response of 58Hz, the CRMS-SRHV can be used as stand-alone monitor, or can be combined with a subwoofer; the MHF section has an 800 W peak power input, enabling a 1:15 dynamic range with up to 90% less distortion to beyond 20 kHz.

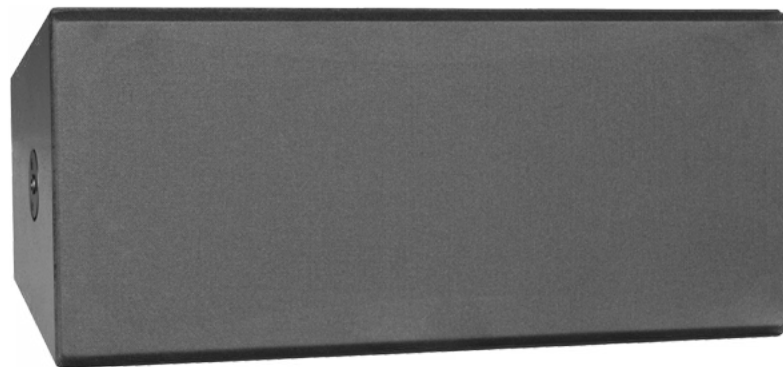
The patented 90-degree horizontal offers a wide horizontal and a tight

vertical coverage up to the highest frequencies; Very important for the seamless imaging in base channels of immersive systems.

Due to the "compression-less" principle of the pro-ribbon transducer, the system has a linear response at any SPL; in combination with Alcons

perfect choice for critical reference monitoring.

For full system performance, the CRMS-SRHV is driven by an ALC controller-amplifier; synergetic technologies, such as VHIR-processing and SIS sensing turn the CRMS-SRHV into a precision instrument delivering max-



Audio's tight manufacturing tolerance within 1dB, making each system a "matched-pair", the CRMS-SRHV is a

imum sound quality with increased headroom and utmost operation reliability.

Philip de Haan, Head of Alcons Audio R&D: "The strongly increased demand from the studio and residential markets for Alcons pro-ribbon systems lead to the development of the CRMS-SRHV/9040 speaker. Needless to say, "immersive" is the leading audio theme today and with our religious commitment to delivering the most true audio experience in any application, we are continuously expanding our range of solutions."

With her pro-ribbon transducer developments, Alcons is perfectly suited to offer a unique combination of studio monitor clarity and intelligibility with the high dynamic range of sound reinforcement systems.

Philip continues: "The CRMS-SRHV/9040 is further proof of this commitment and has already proven itself as excellent addition to the sound engineer's toolbox".

NEUMANN INTRODUCES THE V 402 PREAMPLIFIER

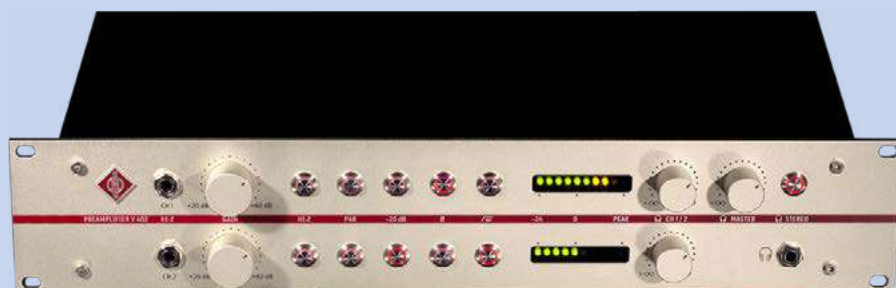
Priced at INR 2,19,000, the Neumann V 402 preamplifier will be available in India from 06 November 2020 at authorized retail partners.

German studio specialist **Neumann**. Berlin has announced the launch of the **V402**, a state-of-the-art microphone preamplifier with integrated headphone monitoring. The V402 is Neumann's first-ever stand-alone microphone preamp – although the company has created several generations of top-quality preamp modules for its mixing consoles, such as the now legendary V 476 B of the 1980s. Like its predecessors, the V 402 preamplifier is conceived as the perfect complement to all Neumann and other high-class studio microphones.

According to **Vipin Pungalia**, Director, Professional Segment, **Sennheiser India**, "We are thrilled to launch the all new Neumann V402 pre-amplifier in India. The Neumann V402 is the first-ever stand-alone microphone preamp which is designed to preserve the

integrity of the microphone's sound image. It provides the ideal signal path perfectly complementing all Neumann microphones- to reveal the truest form of voices and instruments. We have seen a phenomenal response globally and look forward to seeing how consumers respond to this product in India."

The V 402 is a dual channel microphone preamplifier carefully designed to maintain the sonic integrity of the original signal. Its unique transformer less circuitry amplifies the microphone signal without unwanted coloration or sonic artefacts, such as noise and distortion. While this is also often claimed for simple preamps such as those in audio interfaces, the V 402 is built to much higher standards.



The V 402 is equipped with a studio grade headphone amplifier ensuring uncompromised monitoring quality at the recording stage. Independent volume controls for each channel allow to dial in a latency-free monitoring mix without affecting the recorded signal.

Handmade in Germany with Meticulous Attention to Detail

As a true Neumann product, the V 402 is characterized by exacting attention to every detail. For example, the DI input is also designed for sonic

purity. Its novel high-impedance input stage captures the sound of electric guitars and basses as well as other instruments with no loss of detail and free from audible noise. Its switchable high pass removes rumble and pops very effectively without signal degradation.

A 20-dB pad allows the V 402 to be used with high-level sources up to 28 dBu without distortion. The V 402 comes in a 2U 19" rack enclosure measuring 89 mm x 483 mm x 242 mm.

IZOTOPE LAUNCHES NEW INTELLIGENT REVERB PLUG-IN, NEOVERB

iZotope Inc. has released **Neoverb**, a reverb plug-in that combines industry-leading Exponential Audio technology with an intuitive, AI-powered workflow to help music producers and mix engineers quickly find the right space for their vocals and instruments.

Neoverb's Reverb Assistant feature lets users get to a starting point quickly in real-time and can also combine three different reverb engines at once, either through the Assistant or with an intuitive Blend Pad interface. Other highlights include Intelligent Pre and Post EQs that make suggestions to shape and tame reverb in the mix.

Neoverb Features:

Reverb Assistant: With an easy four-step assistant that adjusts iZotope Neoverb's settings in real time, users can get a great reverb for any track and create complex, customized reverbs, without spending time in menus.

Blend Pad: Visualize and mix three different types of reverbs at once to create a unique reverb tail that fits their track.

EQ Section: This feature helps clean

the input signal to keep a reverb tail from overwhelming a mix, to get great reverb sound without using a long plug-in chain.

Advanced Panel: Allows users to dive as deep as they need to find the exact vibe they are looking for, while Advanced Controls set by Reverb Assistant

that can be saved as unique presets for later use.

Input Smoothing: Keep dynamics even and avoid artifacts in the reverb tail with one simple control that reduces the sharp, percussive transients.

Modulation (Mod): A modulation panel that gives even more control

over the reverb tail. Two different modes offer subtle modulation to avoid buildup or a classic chorus for a more pronounced mixing effect.

Resizable: Window resizability ensures Neoverb fits in any workflow and screen, meeting the demands of the modern music producer.

Presets: Includes over 100 inspiring presets created by iZotope's team of professional sound designers, including presets for vocals, guitars, experimental spaces and more.

"We are thrilled to add Neoverb to our roster of essential production products," said iZotope Product Manager **Udayan Sinha**. "It is a truly intelligent reverb that combines Exponential Audio's best-in-class sound quality with iZotope's intuitive workflow that will empower music producers to efficiently tackle any mix."

Neoverb is also a part of newly released Music Production Suite 4, which also includes RX 8 Standard, Ozone 9 Advanced, Neutron 3 Advanced, Nectar 3 (with Melodyne 5 essential), Insight 2, NIMBUS by Exponential Audio, and Tonal Balance Control 2.



TELEFUNKEN INTRODUCES NEW TF11 AT VIRTUAL 149TH AES

TELEFUNKEN Elektroakustik has introduced the **TF11**, the newest member of the popular Alchemy Series and the company's first large diaphragm phantom-powered condenser microphone.

Blending an Austrian-inspired voicing similar to the legendary C12 with modern FET high performance, the TF11 yields a beautifully open and detailed 3D sonic image, with a quick, accurate transient response, high SPL handling, and low self-noise.

The TF11 features a unique combination of circuit elements shared with

other TELEFUNKEN Elektroakustik designs. The CK12-style edge-terminated capsule is a single membrane version of the capsule featured in the TF51. The amplifier is a unique proprietary take on the classic FET mic amplifier similar to the M60, coupled with a custom large format nickel-iron core transformer by OEP/Carnhill made in the UK. Premium through-hole components include UK-made polystyrene film capacitors, Nichicon Fine Gold electrolytic capacitors, and a high-performance, ultra-low-noise JFET amplifier.

The TF11 was developed to bring the Alchemy Series pristine audio quality into a more compact and convenient package, designed for the studio, built for the stage, and affordably priced. Created, hand-assembled and tested in the USA, all critical components are subject to the same high standards as the rest of TELEFUNKEN Elektroakustik's product line. Available as single mics, or matched stereo sets.



FOCUSRITE PRO ANNOUNCES FOUR NEW PRODUCTS

Focusrite Pro has announced Four New Products, designed specifically to meet the needs of modern audio professionals.

Red 8Line

First up is Red 8Line, a new addition to the hugely powerful Red range of Pro Tools | HD, Thunderbolt 3 and Dante audio interfaces for Mac and PC. Red 8Line is the

a button on the Red 8Line front panel, to change DAWs in seconds. Pair it with the new RedNet R1 desktop remote controller for an incredibly powerful user experience.

RedNet R1

RedNet R1 is a desktop remote controller that supercharges any Red range interface, by enabling audio professionals to interact with their

including from Pro Tools | HD and other DAWs, analogue inputs and outputs, ADAT and S/PDIF connections, and from entire Dante Audio-over-IP ecosystems, simultaneously and interchangeably.

Top-panel control includes level, reference level preset selection, dim, mute and a variety of solo modes. There's an A/B switch for switching between numerous monitoring presets, and up to four-fold-down presets allow fast switching for checking downmixes.

RedNet R1 also features a Dante-enabled talkback section, an internal mic and an XLR input for connecting an external mic and a high-powered headphones output, so users can interact with their Dante system. Up to four talkback destination groups are available when used with a Red interface. (When used with other Dante devices, a single talkback group is available.) RedNet R1 features two LCD displays for highly accurate level metering of the outputs, sources and headphone outputs, and for giving visual cues for navigating around menus.

The unit is configured using RedNet Control, the software manager designed primarily for ease of use in quickly setting up both simple and complex monitoring and routing configurations. Other features of the RedNet R1 include a quarter-inch jack socket, which accepts a footswitch for talkback management, LFE muting and more. It can be powered via Ethernet to reduce cabling complexity (using the PoE standard), or by the supplied DC power supply.



Focusrite Pro RedNet R1

RedNet A16R MkII & RedNet D16R MkII

Lastly, Focusrite has updated the RedNet A16R and RedNet D16R Dante interfaces to have new functionality that makes them even more versatile. The new MkII models — RedNet A16R MkII and RedNet D16R MkII share the same feature set as their predecessors, but are upgraded with individual level controls for input and output channels. This allows precise calibration of all inputs and outputs, making the process of accurate alignment of connected equipment more straightforward.

RedNet A16R MkII is a 16x16 line-level analogue interface, which is perfect for getting 16 channels of analogue audio on or off a Dante Audio-over-IP network.

RedNet D16R MkII is a 16x16 AES3 interface — ideal for interfacing between digital audio equipment such as consoles and power amplifiers, and a Dante network.

Both units feature dual PSUs and Primary and Secondary networks, for redundant operations, with audio switchover in case of power loss or network failure, making them ideal for critical path applications, such as broadcast, live sound and post production.



Focusrite Pro Red-8line

best choice for professionals who work in Pro Tools | HD and other DAWs — on both Mac and PC, thanks to the Windows 10 drivers for Thunderbolt 3-equipped PC users. With mini-DigLink, Thunderbolt 3 and Dante connections, it's possible to instantly switch between Pro Tools, other DAW applications, and a vast world of Audio-over-IP. Simply change the host mode either in RedNet Control software, or using

audio like never before. It can control a range of different monitor output setups, ranging from mono through to 7.1.4 surround, including Dolby Atmos and other immersive audio workflows. Alternatively, completely custom setups of up to 12 outputs can be configured for bespoke speaker configurations.

RedNet R1 can be used to control groups of outputs from a Red interface's multitude of sources and destinations,



Focusrite Pro Red-8line

MX MDR LAUNCHES NEW PRODUCTS FOR STUDIO AND LIVE PERFORMANCE

MX-MDR Technologies Limited, a well-known manufacturer of pro audio and studio equipment have launched new products designed for use in studios and live performances.

Miktek ProCast SST USB Microphone/Audio Interface

The **ProCast SST** is a high-quality USB studio condenser microphone with integrated radio

style boom and on-board 24 Bit audio interface. The ProCast SST's mixer sec-



tion offers two inputs which can be used to connect mics or line sources. Channel 1 allows users to use the onboard condenser microphone or select the rear panel 1/4-inch Instrument/Line level input. Channel 2 provides a rear panel mini XLR to connect a second microphone, or selectable rear panel 1/4-inch Instrument Line level input. Each input features a Mic/Line switch, Clip LED, a 60 mm studio quality fader, plus Mute switch.

Additionally, there's a phantom

power switch to power an external condenser microphone. The ProCast SST provides no latency direct monitoring, which can be mixed in with the computer playback. The SST also has a second headphone output for producers, additional talent, or users can use the output to connect a set of control room studio monitors. The ProCast SST's professional features makes it an ideal choice for home recording. Singer/songwriters can easily record high quality vocals and connect electric and acoustic guitars or keyboards to produce professional quality recordings.

Superlux USB Condenser Microphone

The **E205U** is a condenser microphone with an advanced A/D



and USB interface which gives users digital recording capabilities instantly with no external digital interface or software driver required. It is USB compatible with Mac, Windows, and most DAW software programs, including GarageBand. The E205U offers premium quality audio recording with ease and mobility, and with its mic stand mount adapter and 9.8 ft. (3-meter) USB cable, the E205U is a valuable kit for any project studio.

Soundking DM20: Digital Mixer

The **Soundking DM20** is a 16-channel digital mixer with 12 mic inputs and 2 stereo inputs, designed for live performance mixing in the modern age. The IPS multi-function Touch screen control and wireless iPad connectivity give ease of control, while the nine motorized faders and scene saving and selection allow for effortless show setup. Signal

and effect processing are taken care of onboard the DM20, so there no need for external rack equipment or patching. The high-quality Neutrik connectors make the DM20 is an



ideal mixing desk for bands that mix themselves or sound technicians mixing multiple bands.

PRESONUS INTRODUCES PD-70 DYNAMIC BROADCAST MICROPHONE FOR LIVE STREAMING

The new **PreSonus PD-70 Dynamic Broadcast Microphone** is built to capture the spoken word cleanly and clearly while eliminating mechanical noise and breathiness that can get between the user and their audience. It's a great choice for podcasters, radio broadcasters, YouTubers, and live streaming.

Its superior off-axis rejection, can set up any broadcast studio in just about any space, and unwanted

reverberance, electrical hum will be left behind, leaving only the pristine, natural sound of the voice.

A ruggedly built, dynamic end-address mic with a cardioid polar pattern, the PD-70 delivers exceptional clarity throughout its 50 Hz to 20 kHz (± 3 dB) frequency range. Its integrated windscreen reduces annoying plosives for a smooth, professional broadcast sound. It also includes an integrated hard mount.



SOLID STATE LOGIC ADDS EXTRA PRODUCTION PUNCH TO ITS AUDIO INTERFACES

From November 1st to December 31st, Solid State Logic is providing an expanded **SSL Production Pack** along with all new purchases of its professional personal studio interfaces, SSL 2 and SSL 2+. The Production Pack Expansion includes SSL Native FlexVerb and X-comp plug-ins.

In addition to FlexVerb and X-comp, the free software bundle with the SSL 2 or SSL 2+ interface also includes full licences of SSL



Native Vocalstrip 2 and DrumStrip plug-ins, along with professional quality virtual instruments, samples and DAWs from the partners at Native Instruments, Loopcloud, Ableton and Pro Tools giving everything needed to start the creative journey the SSL way, or enhance the workflow with a selection of world-class production tools from the masters of audio production.

The SSL Production Pack Expansion is also available to all existing SSL 2 and SSL 2+ interface owners.

An Unequal Music

by **Abhimanyu Malhotra**,
The Sonic Arts Co.



THE RISE OF INDIE LABELS

My previous column was an insight into how the music industry adapted to the fallout of the pandemic and how we navigated such new and turbulent waters. And now, as we start assimilating to this 'new normal', we are seeing certain trends across our industry that have developed over the past few months. The sheer amount of talent in this country, across genres or skill level, has been hard at work while stuck at home, and this is reflected through the amount of content that has been created and released over the past few months. It is without a doubt that India is a goldmine of musical talents just waiting to be discovered, but the flip side of that coin is that a massive percentage of this talent pool still goes undiscovered and unappreciated. There is still tremendous opportunity in breaking new artists and giving them the necessary resources, knowledge and guidance in order to establish themselves and build a following, and the pattern we have seen over the past few months is the emergence of music labels that aim to fill this very gap in the industry and take advantage of this ripe opportunity.

Let us first look at the role of a music label and how it has transformed over the years. Traditionally, a label was responsible for producing the artist's sound, marketing and distributing a physical product (CD or cassette tape) and setting up tours. They were seen as the backbone for an artist's career, but signing with a label did come with its own set of drawbacks. Labels had a tendency to push their commercial agendas over artistic vision, take advantage of royalty monetisation, and there are countless artists that were locked into contracts that were detrimental to their music and careers. Thanks to technology and the advent of social media, the roles that label was supposed to fulfil have now become decentralised. The artist gained power and could engage with all these roles in a direct manner, executing their vision as they pleased. Nowadays, digital distributors offer 100% royalties to artists and platforms such as Instagram and Google Ads

are massively utilised for music marketing by individuals. Access to producing music has become cheaper, no longer requiring million dollar studios, and has become prosumer facing (where you don't require technically advanced professional gear in order to create a piece of music and multi-million dollar music hits are being produced and written on iPhones and Apps such as GarageBand). This decentralisation has transformed the traditional roles played by a label, but a key component left behind is the element of moulding an artist, and the artist's sound. The ability to take raw talent and mould it into something world-class is not as easy to replicate, and this producer role has been a missing key element all along. It is a vital role that determines the overall quality of the music landscape, and pushes the

which is to be the torchbearers for the next generation of musical talent. They have taken upon the responsibility to find, nurture and provide a platform, which is the need of the hour. What also sets such initiatives apart, is that the label is no longer in the hands of corporates but artists themselves, who know the struggles and who know the sheer amount of work that goes into making a mark in the industry. The creative and corporate angles are now balanced by individuals who are musicians themselves, and who have their own audiences and fan following. This drastically changes the dynamic that previously deterred musicians from signing over their careers to music labels. Creativity and vision is now a core value, rather than just a marketing strategy. Artists now own their own masters (which is a

This decentralisation has transformed the traditional roles played by a label, but a key component left behind is the element of moulding an artist, and the artist's sound. The ability to take raw talent and mould it into something world-class is not as easy to replicate, and this producer role has been a missing key element all along.

bar higher not just for individual artists, but for audiences as well.

Over the last few months a number of Indian record companies, both mainstream and independent, have launched with the intention of being modern record labels that give artists creative freedom and investing in platforms that promote the sounds of the unheard masses. *AT Azaad* (Amit Trivedi), *Oriyon Music* (Arijit Singh), *Merchant Records* (Salim-Sulaiman), *VB Music* (Vishal Bharadwaj) are examples of labels launched by prominent and accomplished individuals over the last few months. Vishal Dadlani and Emiway also have their own imprints soon to launch. The very scope of the styles and genres that will be covered here is immense, and for these industry tastemakers are taking upon a big responsibility on their shoulders by launching such initiatives,

huge step forward) and are also given a lot more flexible contract options, such as signing over individual tracks as opposed to deals which used to lock them down for years at a time and leech on every possible income stream.

The last few months has even seen artist talent agencies such as *Krunk* and *Third Culture* launching their label initiatives, focusing on developing niche sounds, yet with the same intention of ushering in and moulding the next generation of musicians. Music studio *Salt Haus* in Chennai, again run by artists and musicians has also launched their label imprint, with the idea of filling the role of the producer in the industry. No matter the genre or style of music, the pattern we are observing suggests that tastemakers have identified this gap of who will curate the next generation of sounds and are now actively building

an answer to the question.

Looking at label releases from a monetisation stand point, they are definitely not replacing the income streams provided by live events (which unfortunately are going to continue being on hiatus for quite awhile), as the sheer number of streams required across video and audio platforms is in the millions (YouTube approximately pays out .01 INR per stream, while Apple, Spotify and others range from .04-.06 INR per stream for audiences in the Indian sub continent. These payout rates differ from country to country and are determined by a number of factors, and the range between rates is ~0.7-0.10 INR). And that's why it makes sense for music companies and artists to launch labels as a secondary arm to what their primary role is. Whether it is a booking agency like *Krunk* or music studio like *Salt Haus*, the label aspect is being shaped to feed the primary objective of that respective company. It becomes a marketing arm, a digital extension of the brand that can keep their audiences constantly engaged and grow the fanbase.

This genre-wide emergence certainly gives a lot of promise and hope to all those musicians just waiting to be discovered. What's most exciting is, that it is not a group of corporate individuals behind the curtain, but artists and musicians who have decades of experience. As a musician myself, I have worked in all sorts of environments and the journey is a lot more fulfilling and motivating when mentored or guided by an experienced artist. Seeing and hearing the material that will be released by such labels is definitely going to be interesting and something to keep an eye out for. Despite the impact of the lockdown on our industry, it is certainly re-emerging and maturing with new and promising avatars.



*Meghdeep Bose is a noted arranger, composer and music producer. In this exclusive interview with PT, Meghdeep talks about his collaboration with Sennheiser and Neumann for the Indian edition of **Neumann Home Studio Academy Series** using classical Indian musical instruments like the Tabla and the Sarangi and the various miking and stereo recording techniques one can use when arranging music in their home studio.*

Neumann Home Studio Academy India edition

In Conversation with Meghdeep Bose

What inspired you to collaborate with The Neumann Home Studio Academy India edition series? Tell us how this collaboration came about.

I have always believed that education is the most crucial step towards success and growth of an individual in any

field. When an opportunity struck for a possible collaboration with Neumann for their home studio academy series, I was more than happy to compile and share some expertise with the audience.

It was an honour for me to be able to engage with the new generation in whose hands lies the future of the music industry.

I will continue to engage in such educational ventures in the future.

Globally, the Neumann Home Studio Academy has offered high-quality tutorial videos on various aspects of recording via a dedicated website and an associated YouTube channel. The videos, which have met with an extremely positive response in recent

years, are described by viewers as being the best in this field. On a similar note, Neumann wanted to present the India edition series to offer the best practices and insights on how to record typical Indian instruments. Hence, Neumann considered me to present the India Edition for this esteemed series.

It has been a greatly enriching and

learning process to consult professional engineers and research on various principles of recording arts.

It is a matter of great privilege and honour to work with, Neumann Berlin which is a giant brand in the Music Industry.

So, what does this collaboration mean for you as well as the studio industry in India?

The pandemic has led to a huge shift in the way the Music Industry functions. Performing Artists / Session Musicians & Composers who have been strongly dependent on professional engineers and studios have suddenly been compelled to go DIY and in some cases ensure their survival by working from their homes.

In such times when artists, composers and producers cannot afford professionally trained, capable engineers and well calibrated and equipped studios, this collaboration with Neumann for its Home Studio Academy Series is a step in the direction to empower musicians and artists who are recording music from their home by educating them about the ways in which professionally acceptable or rather optimum results could be achieved with the equipments/gear they own. Sennheiser and Neumann are doing an excellent job in helping the home-bound music professionals up their skills, especially during this pandemic.

Who is the target audience for The Neumann Home Studio Academy? These sessions are most beneficial to which segment of industry professionals?

The India edition series of Neumann Home Studio Academy will be beneficial especially for music professionals like Singers, instrumentalists, music producers and even budding professionals who now have to deliver most of their works from home. These session tutorials deal with the basics of miking the instruments and showcasing various stereo recording techniques.

You are a well-known music producer, composer and arranger with songs like Swag Se Swagat, Slow Motion, Bol Do Na Zara and many more under your belt. Have you also recorded these songs or have you only composed and produced them? Tell us a bit about your journey in the music recording industry in India.

I've arranged, produced and co-written the instrumentals of the above mentioned songs.

A music producer working for Indian films happens to record a lot of material within a song or score while being in the process of writing. There are many things that get recorded as a rough doodle but are often not replaced by

dubbing them later because they eventually become the song's characteristic elements. In light of the fact that writing and producing music is a very personal process it becomes almost impossible to book studio sessions and engage a sound engineer to be present throughout the process.

For example in Bol Do Na Zara there's a bagpipe piece in the second interlude which is actually not a bagpipe but a handmade plastic-straw wind instrument innovated by my flutist friend on the spot for the sonic demand of the song.

It was simultaneously recorded & processed at my home setup while I was in the process of writing the arrangement and was finally retained as it is within the song without being replaced by an overdub later.

Also there are guitars & analog synthesizers that I play and track in almost all the songs I arrange.

Recording instruments simultaneously is definitely inevitable in most writing & production ventures but the importance of having a professional recording engineer controlling every gain stage hands-on must never be forgotten or ignored.

How many sessions have you done till date for The Neumann Home Studio Academy and what is the emphasis while deciding the topic of the session?

The Neumann Home Academy Series was 3-part video series of the home studio recording wherein we introduced some of the basic recording and miking techniques for tabla and sarangi along with their brief history and how it originated. We further highlighted on how people can position their Neumann microphones for the best sound quality output and detailed out the difference in the sound of the instruments by using various miking techniques.

These academy series were created with the intent to first teach the basics of tabla and sarangi to our audience, and then later deep dive into recording techniques.

For your session on How to mic a tabla and a sarangi, of all the Indian Musical Instruments why did you choose the Tabla and the Sarangi specifically?

Rhythm and melody are the backbone of making music. The magic that beats of tabla and notes of sarangi can create fascinates me. I have always been intrigued about tabla and sarangi's history and where they originated from.

Reason why I chose these two instruments for our first season is to portray two different nature of instruments. Tabla being a percussive instrument contains pitch and a complex harmonic detail that comes with different "bols" and their combinations.

On the other hand Sarangi is a beau-

tiful melodic instrument which is played using a bow.

I believe that the complexity of these two instruments was a good way to cover various aspects of capturing sounds.

Tabla was originated when Amir Khusru in the 15th or 16th century invented the Khayal style of singing and Pakhwaj- an Indian instrument seemed a serious sounding instrument to accompany Khayal. Hence, Tabla came into existence. It's versatility in all musical styles has won an unmatched status in the world of percussion instrument.

Sarangi is widely believed to mean 100 colours- indicating its adaptability to wide range of musical styles, its flexible tunability and ability to produce a large palette of tonal colour. Whether it is a folk or classical music, Sarangi is one of the rare instruments which comes in closest proximity to the human voice. Sarangi became popular in the mid 16th century to accompany vocal music and is often described it as the Indian violin. Its tone is rich, extremely enchanting, and can be used to perform in exceptionally large variety of genres.

Was the focus of this session more on arrangement or recording? Can you provide a brief summary of this session and the important tips you had to offer?

The focus of these sessions was to provide holistic knowledge on how to record tabla and sarangi using various miking and stereo recording techniques.

In the first of the 3-part video series of the home studio recording, we introduced viewers to the basic recording techniques of Indian instruments. As part of the video, we deep dived into the history of Indian classical music, nuances of Tabla and Sarangi, and a brief history of these instruments and where they originated from.

The second part of the series focused on how people can position their Neumann microphones accurately for the best sound quality output, and how the tone changes with the different settings of these microphones. With the help of microphones such as the legendary Neumann TLM 102 or TLM 103, even the slightest sounds of the instruments can be captured.

We further deep dived into the mono miking techniques wherein we use TLM 102 which is usually positioned 3-4 inches from the middle of right and left for great output. There are variety of positions that can be used to pick up a sound source. For example, if a microphone is kept close to an instrument, it might sound a bit different as compared to the microphones that are placed at a distance. To mike a sarangi, the best place to position a micro-

phone is a couple of inches away from the instrument, at the same level of a bow- pointing to a spot where the bow meets the strings of sarangi.

In the third and the final part of the video, we introduced various microphone techniques that can be leveraged using Neumann microphones. The video further details out the difference in the sound of the instruments by using various stereo recording techniques.

Are you planning to focus on other Indian Musical Instruments in the future sessions?

Social media responses have indicated a major demand for tutorials on capturing Sitar, Harmonium and percussive instruments like Dholak & Pakhawaj. I'd like to present the next season with information on how to capture the above instruments.

How do you decide what mics to use for which instrument?

I am not a trained sound engineer and so I play it by the ear by going around the instrument and place the mic where it sounds and feels the best to me. But I make sure that I capture the instrument's room in parallel.

What did your session on Various stereo recording techniques using different Neumann microphones cover?

The 3rd part of the Neumann Home Studio Academy series covered various stereo recording techniques such as XY Technique and ORTF Technique. We showed our audience how we can record and capture the natural sounds of the instruments using these couple of techniques.

To demonstrate how to record the instruments using XY technique, we made use of the directional microphones. These microphones are sensitive to the sound coming from the front and has a high rejection sound coming from the rear. For this, these microphones are positioned at the same place with a 90-degree gap from the tip of the microphone. If we have to achieve a stereo affect, it is through the differences in the sound pressure levels between the two microphones. Due to the lack of differences in the time of arrival and phased ambiguities, the sonic characteristic of XY recording gets generally less spacey with less depth.

The ORTF technique requires cardioid microphones. Cardioid microphones are appropriate for this technique as they suppress sound coming from the back. This technique combines both the volume of 2 microphones which are spread to 110-degree angle. To achieve the best recording quality, the microphones should be as similar as possible- possible of a similar model or

(Continued on page 56)

AV-ICN_x

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Microphones

Earthworks FlexMic Series

The Earthworks FM Series models offer you a variety of choices with fully flexible goosenecks or goosenecks with rigid centers that have flex at both ends. All models have smaller diameter goosenecks and are available in either cardioid or hyper-cardioid polar patterns.

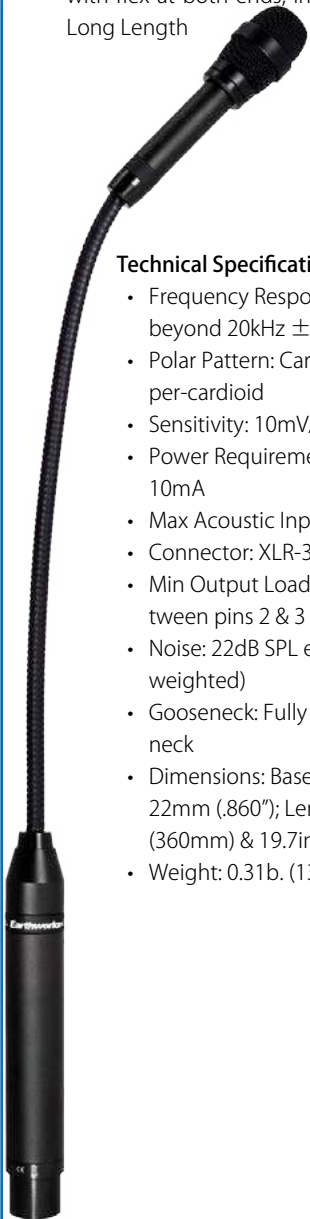
Earthworks FlexMics can be used in churches, theatres, boardrooms, and more.

Main Features include:

- Uniform Frequency Response at 0°, 45° & 90°
- On or Off Axis, Always Hear the Orator
- More Gain Before Feedback
- No Handling Noise
- 139dB SPL Max Acoustic Input
- 20kHz High Frequency Response
- Incredible RFI Rejection
- FM Series: Available with Fully Flexible Gooseneck in Short or Medium Lengths
- FMR Series: Available with Rigid Gooseneck with flex at both ends, in Short, Medium or Long Length

Technical Specification: (FM 500)

- Frequency Response: 50Hz to beyond 20kHz \pm 2dB@ 30cm
- Polar Pattern: Cardioid or Hyper-cardioid
- Sensitivity: 10mV/Pa (-40dBV/Pa)
- Power Requirements: 48V Phantom, 10mA
- Max Acoustic Input: 145dB SPL
- Connector: XLR-3 (pin 2+)
- Min Output Load: 600 ohms between pins 2 & 3
- Noise: 22dB SPL equivalent (A weighted)
- Gooseneck: Fully flexible gooseneck
- Dimensions: Base diameter is 22mm (.860"); Lengths 14.2in. (360mm) & 19.7in. (500mm)
- Weight: 0.31b. (137g)



Sennheiser SKM 6000

The handheld transmitter SKM 6000 is inter-modulation-free, which allows operation in an equidistant frequency grid. The transmission concept thereby permits maximum spectral efficiency even in the toughest frequency ranges. In short: more channels, maximum transmission performance at all times and hence outstanding signal stability.

Main Features include:

- Three frequency variations (470-558 MHz, 550-638 MHz, 630-718 MHz)
- Sennheiser standard capsule interface, compatible with microphone heads from Sennheiser and Neumann
- Highly effective intermodulation protection
- AES 256 encryption and Digital 9000 encryption
- Compatible with EK 6042 and EM 9046 in Long Range mode
- Li-ion battery packs with 5.5 hours run time
- Magnesium housing

Technical Specification:

- Frequency range**
- 470 to 718 MHz, subdivided into 3 ranges:
 - SKM 6000 A1 - A4: 470 - 558 MHz
 - SKM 6000 A5 - A8: 550 - 638 MHz
 - SKM 6000 B1 - B4: 630 - 718 MHz
- Audio codec**
- SeDAC (Sennheiser Digital Audio Codec)
 - SePAC (Sennheiser Performance Audio Codec)
- Frequency stability**
- < 5 ppm
- Tunability**
- 25 kHz steps
- Lower cut-off-frequency**
- Adjustable: 60 Hz, 80 Hz, 100 Hz, 120 Hz
- Audio frequency response**
- 30 Hz - 20 kHz (3 dB)
- Audio Gain**
- Can be set in 3 dB steps from 0 dB to +62 dB (for each capsule)



RF output power

- 25 mW rms, 50 mW peak

Power consumption

- Max. 960 mW

Weight

- Approx. 350 g

Dimensions

- 270 x 40 mm

DPA 2028 Vocal Mic

The 2028 Vocal Microphone is a professional stage mic with extraordinary natural sound, high separation from nearby sound sources and very high SPL handling.

The mic features exceptionally controlled directional quality. This, combined with superb definition and true dynamics, makes the 2028 the perfect match for all types of live performances.

Main Features include:

- Renowned DPA sound
- Natural vocals – from folk to metal
- Reduces feedback issues
- Rugged enough for the live stage
- Uniform supercardioid directionality
- Extreme SPL handling

Technical Specifications :

- Directional Pattern: Supercardioid
- Principle of Operation: Pressure Gradient
- Cartridge Type: Pre-Polarized Condenser
- Frequency Response: 20 Hz - 20 kHz
- Effective Frequency Range \pm 2 dB, at 12 cm (4.7 in) : 100 Hz - 16 kHz. Permanent 3rd order low-cut filter at 80 Hz
- Sensitivity, Nominal, \pm 3 dB at 1 kHz: 5 mV/Pa; -46 dB re. 1 V/Pa
- Equivalent Noise Level, A-weighted: Typ. 22 dB(A) re. 20 μ Pa (max. 23 dB(A))
- Distortion, THD < 1%: 136 dB SPL RMS, 139 dB SPL peak
- Dynamic Range: Typ. 117 dB
- Max. SPL, THD 10%: 160 dB SPL peak
- Rated Output Impedance: 150 Ω
- Minimum Load Impedance: 1 k Ω
- Cable Drive Capability: 100 m (328 ft)
- Output Balance Principle: Impedance balancing with Active Drive



Microphones are one of the main gears of any event, whether it is performances, lectures, etc. For most of these events high-quality sound is required. **PT** brings to you a line-up of some popular microphones for Theatres and Auditoriums.

- Common Mode Rejection Ratio (CMRR) : > 50 dB at 1 kHz
- Power Supply (for full performance) : P48 (Phantom Power)
- Current Consumption: Max 2.5 mA
- Connector: XLR-3M. Pin 1: shield, Pin 2: signal + phase, Pin 3: - phase
- Color: Matte black
- Weight: 286 g (10.1 oz)
- Microphone Diameter: 48 mm (1.9 in)
- Capsule Diameter: 19 mm (0.75 in)
- Microphone Length: 188 mm (7.4 in)
- Maximum Output Voltage, RMS: 9 Vrms; 19 dBV; 28 dBu
- Polarity: +V at pin 2 for positive sound pressure
- Temperature Range: -40°C to 45°C (-40°F to 113°F)
- Relative Humidity (RH) : Up to 90 %

Harman AKG C636

The C636 features a proprietary double shock suspension system which provides unparalleled rejection of handling noise. Made with hand-selected components and manually tuned for a pure transparent tone, the new C636 retains the spirit of the classic AKG C535 condenser microphone, while being updated to meet the demands of today's top vocal performers.

Main Features include:

- Uniform cardioid polar pattern throughout the entire frequency spectrum
- Custom-tuned cardioid condenser capsule
- Protection system consists of the grille, a foam layer behind the grille and a magnetically attached computer-modeled mesh layer on top of the capsule
- Rugged zinc alloy construction and a spring steel grille
- 24-carat gold plated capsule to protect the microphone against moisture and corrosion
- Proprietary double shock suspension system

Technical Specifications :

- Type: 3/4" Back Electret Condenser
- Polar Pattern: Cardioid
- Sensitivity (Cardioid): 5.6 mV/Pa (-45 Dbv)
- Frequency Response: 20 Hz to 20 KHz (See Frequency Response Trace)
- Electrical Impedance: ≤ 200 Ohms
- Recommended Load Impedance: ≥ 2000 Ohms
- Equivalent Noise Level to IEC 60268-4: 20 Db(A)
- Signal to Noise: 74 Db(A) Re 1 Pa
- Max. SPL for 1% THD: 150 Db

- Temperature Range: -10 °C To +60 °C (14 °F - 140 °F)
- Phantom Powering: 48 V \pm 4 V to IEC 61938
- Current Consumption: ≤ 4 Ma
- Connector: 3-Pin XLR (Pin 2 Hot)
- Length: 185 Mm (7.29 In.)
- Diameter: 51 Mm (2.01 In.)
- Net Weight: 312 G (11 Oz.)
- Bass Cut Pad: 80 Hz, 12 Db/Octave
- Box Dimensions (L X W X H): 25.5 X 8 X 8 Cm (10 X 3.2 X 3.2 In.)

MX MDR Superlux TM-58S

TM58 series cardioid dynamic microphones are designed for speech and performance and deliver authentic sound without any unnecessary sound coloration. Equipped with tailored diaphragm and precise directivity, TM58 series give full and powerful sound. The high SPL and high-grade transient response of TM58 series compared with other microphones makes stage performances strong and penetrating.

Main Features include:

- Balanced and clear true sound
- Frequency response is good for intelligent recognition and the mid- high-frequency band is bright, the low frequency band is solid powerful
- High SPL capacity
- On/off switch with locking function
- Newly-designed capsule shock mount

Technical Specifications:

- Type: Dynamic
- Polar Pattern: Cardioid
- Frequency Response: 50-18k Hz
- Sensitivity: -52 \pm 2 dB
- Impedance: 500 Ohms
- Max. SPL: 155 dB

Shure SLX – D

From lecture halls to houses of worship to performance venues, SLX-D delivers transparent, 24-bit digital audio and rock-solid RF performance with easy setup and rechargeability options in a suite of versatile wireless system configurations.

Main Features include:

- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 120 dB dynamic range
- Digital predictive switching diversity
- 44 MHz tuning bandwidth (region dependent)
- 32 available channels per frequency band (region dependent)
- Up to 10 compatible systems per 6MHz TV band; 12 systems per 8 MHz band
- Easy pairing of transmitters and receivers over IR scan and sync
- Up to 8 hours from 2 AA batteries or optional Shure SB903 rechargeable battery

Technical Specifications:

RF

- RF Carrier Frequency Range: 470–937.5 MHz (Varies by Region).
- Working Range: 100 m (328 ft) Note: Actual range depends on RF signal absorption, reflection and interference.
- RF Tuning Step Size: JB Band: 125 kHz; All Other Bands: 25 kHz; Varies by region.
- Image Rejection: >70 dB typical
- RF Sensitivity: -97 dBm at 10-5 BER

AUDIO

- Latency: 3.2 ms
- Audio Frequency Response: 20 Hz–20 kHz (+1, -2 dB)
- Audio Dynamic Range
- A-weighted, typical: 120 dB @1% THD
- Total Harmonic Distortion: <0.02%
- System Audio Polarity: XLR: Positive pressure on microphone diaphragm produces positive voltage on pin 2 with respect to pin 3 of XLR output.
- TRS: Positive pressure on microphone diaphragm produces positive voltage on the tip of the 6.35 mm (1/4-inch) with respect to the ring of the 6.35 mm output.
- Mic Offset Range: 0 to 21 dB (in 3 dB steps)

TEMPERATURE RANGE

- Operating Temperature Range: 0 °F to 122 °F (-18 °C to 50 °C)
- Storage Temperature Range: -20°F to 165°F (-29°C to 74°C)





ACOUSTICS IN AUDITORIUM DESIGN

by Vijay Purandare

Importance of Acoustics in Auditorium Design

How a room sounds and feels depends heavily on the specific acoustic properties of the materials in the room. For example, the acoustics of a concert hall are designed in such a way that the music of the orchestra is amplified by natural reverberations. The conception of an auditorium for first-class sound quality begins with the basic layout of each room to ensure that sound waves are distributed evenly across the room.

The aim of high-quality auditorium acoustics is the equal distribution of sound for the seated audience regardless of where they are seated in the auditorium. Architects and builders rely on acousticians to reduce the distance that sound will travel and increase it. This includes advice on the acoustic design of the auditorium and the provision of acoustic design treatments tailored to the audiovisual media and the acoustic environment of the auditorium itself.

The key to sound acoustic is to find a balance between building materials and floor plan that allows you to absorb and reflect sound waves while designing the building.

Vijay Purandare conducted a seminar it is a presentation on **ACOUSTICS IN AUDITORIUM DESIGN** at the **PALM Conference & Seminar** in 2018 wherein he spoke about the Acoustics for Auditoriums and how any good acoustical design should be near perfect combination of reflection, diffusion & absorption of sound energy. Below is a short extract from the seminar.

[Link to full video in the adjoining box.](#)

According to Vijay Purandare, "It is always our effort that the performer in the auditorium and the audience in the auditorium to experience the best possible audio-visual experience. When it comes to architectural acoustics it is the branch of engineering and we focus on three components, communication, comfort and privacy in architectural design".

Acoustics in Auditorium Design

When talking about acoustics when designing a particular room or a particular space for acoustics it is designed not for machines, but for humans to listen a frequency or a program. When it's at auditoriums, it is for noise control, speech clarity and



acoustic gain; when it is for cinemas it is for noise control, dialogue clarity, and surround sound field are some additional factors that needs to be considered while designing cinemas. For classrooms noise control, overall acoustical comfort, speech clarity are the factors when we talk about acoustics; it is noise control and overall comfort of the people. In an office it is noise, comfort and crosstalk in between the cabins and in homes and hotels again, noise control, comfort and privacy.

This can be sub divided in two parts. One is control of noise and soundproofing and the other part as a room acoustics that is internal acoustics of any room which deals with absorption, reflection and diffusion of some and third is electro acoustics. When it comes to noise, it can be simply defined as unwanted sound by mistake or by some way. Many people think that all the noise is always bad. But as a friction in mechanical engineering noise is also good and helpful when it is in the right amount at the right place.

Practically every space demands acoustic attention in order to function for its specified purpose like:

Auditoriums – for noise control, speech clarity and acoustic gain

Cinemas – noise control, dialogue clarity, surround sound field

Classrooms – noise control, comfort and speech clarity

Factories – noise control and comfort
Offices – noise, comfort and cross-talk i.e., privacy

Homes/Hotels – noise, comfort, and cross-talk i.e., privacy

Architectural Acoustics can be sub-divided into:

- Noise and soundproofing
- Room Acoustics – absorption/reflections/diffusion
- Electro Acoustics – Audio System

Noise & Soundproofing

Noise can be simply defined as unwanted sound.

Control of noise is useful in:

1. Achieving Speech Clarity – less is better
2. Reduce cross-talk – increase privacy – more is better
3. Increase in comfort – moderate is better

Noise in Auditorium

When it comes auditorium, it is always that lesser is better and ways to improve on the noise or controlling the noise is, closing all air gaps by increasing the surface density of the partitioning walls by using thicker walls, high density materials, cavity walls filled with absorbing materials, like glass wall, that also helps. Glass wall itself will never help you in isolating or soundproofing.

Many people try to use glass wall or thermal insulators, as acoustical insulators or acoustical barriers, although these thermal insulators are very good sound absorber in mid and higher frequencies, but on itself, they will never stop the sound to move from one side to the other side. In a cavity, what result we get is, when there are two walls in between the isolation, one wall will vibrate, it will generate a secondary wave, the secondary wave will hit another wall, that will again vibrate and produce sound at the other end, that in between transition of the sound will get absorbed by use of the glass wall, that is the use of glass wall in sound absorption, in fact any absorbing material.

When it comes to noise in auditorium, why noise control or mic reduction is important it is because there is a limit to gain before feedback. You can put whatever audio system, whatever amplifiers, whatever microphones, there is a limit to that volume control, beyond certain limit it will start whistling, it will start giving feedback and beyond that, no one is able to achieve more gain in electronic system. The other way we can improve the signal to noise ratio is nothing but to reduce the noise and especially when it comes to drama auditorium, which is the critical most auditorium application, it becomes very critical to achieve even that 15 dB of signal to noise ratio and for that, when it comes to performing arts auditorium noise control becomes very critical.

- Due to the limit of 'gain before feedback', noise is very critical.
- Should be as less as possible
- Any increase in noise always masks the original signal
- For perfect speech clarity S/N ratio should be minimum 15dB
- In general, it should follow NC35 and NC30 specifically for Drama (including A/C & Electrical)

Noise Control results depends on

The result of noise control depends on the perfection in design, implementation of the design at site, and understanding of the subject by the workers who are working at the site. Unless the worker doesn't understand why there should not be any air gaps, he will never work for that and unless he understands the subject or understand the necessity of the design, the implementation or results will not be fully acceptable.

1. The perfection of design
2. Implementation of the design
3. Understanding of the subject by actual works

Room Acoustics

The purpose is to achieve:

- Comfort – through noise control

- Speech Clarity – through absorption and reflections
- Liveliness of Music – through diffusion and reflections
- Acoustic Gain – through reflections

Large Room Acoustics

When it comes to auditorium acoustics or large room acoustics this is how the criticalness goes on increasing (as shown below). Open air auditorium is the simplest form as far as acoustics is concerned to design provided it is at a remote place or the noise level there is less than 35,30,25 dB. Semi open hall or Sabha Mandap, the classical example of this we see at many of our Indian temples. Then there is multipurpose hall and music auditorium, then corporate auditoriums can be considered because in corporate auditoriums microphones are always close to the mouth. In cinemas there is no live performance and all the material is recorded, and performing arts and drama auditorium is the most critical application. For all these applications, lesser the noise is good, this will increase the signal to noise ratio and also the speech clarity.

Open Air Auditorium

Semi Open Hall (Sabha Mandap)

Cinema

Multipurpose Hall

(Mostly in schools or indoor stadiums)

Music Auditorium

Corporate Auditorium

(For presentation, conference, lecture)

Performing Arts & Drama Auditorium

Reverberation Time RT60

Reverberation Time is the most discussed factor or parameter in acoustics. It is important but not the only important parameter. Many times, people try to calculate only this reverberation, absorption, it is driven by the material manufacturers also because a manufacturer will never talk about other materials. It is time taken by the sound energy to decay by 60 Db from the original when the original sources stop.

- Important (but not the only) factor in room acoustics
- Reverberation is stored energy of sound waves which gradually decay
- It is the time taken by the sound energy to decay by 60dB
- Speech clarity directly related (In proportion) to RT60
- Optimum reverberation required for liveliness of sound

Diffusion of Sound

Diffusion of sound is another important parameter; this is very important to create liveliness in the experience of sound. Another importance of diffusion is for all acoustical calculations, it is considered that the sound field in a

particular room is diffused. If we try to calculate absorption or calculate reverberation in a parabolic shape of the ceiling, where the sound waves are highly focused, the calculations and the actual practical results when measured will be largely different.

- Diffused sound field is always needed (and is basic assumption in all acoustical calculations) for natural, lively experience of the performance.
- This can be achieved by providing proper acoustical diffusers or using some interior decoration items as diffusers.

Acoustical Reflections

Acoustical Reflections is again an important factor, however somewhat neglected in overall auditorium design or acoustical design.

- Important but somewhat neglected
- Sound we hear in any enclosed hall is a combination of direct & reflected sound
- All reflections directly affect the definition of sound

Acoustical Reflections can be divided into:

- Early Reflections – good and normally adds to improve the definition of the sound and increase the clarity
- Late Reflections – bad reflections and ruin the clarity
- Reverberation – Reverberation is really a function of very late and diffused reflections

Conclusion

Acoustical treatment of any auditorium is a carefully designed combination of Absorption, Reflection and Diffusion fluently merged with interior in a noise controlled envelop to improve the connection between the performer and the audience.

Link to full video on page 48

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**PALM
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13 - 15 May 2021

**Bombay Exhibition
Centre, Nesco,
Mumbai**

American Actor Brian Stokes Mitchell once spoke about the magic of theatre, "It has the power to transform an audience, an individual, or en masse, to transform them and give them an epiphanal experience that changes their life, opens their hearts and their minds and the way they think".

Although technology plays an essential role in the content of theatre, it also revolutionizes the way productions are created and how they are created. From sound design, sound effects, lighting, music, costumes, and performance, technology is at the heart of everything and has become an integral part of theatre. Technology is giving sound designers the tools to set up and create exceptional sounding acoustics for better performance.

Digital transformation is changing the theatre, not only in terms of performance, but also in terms of the design and production of the theatre. While technology has remained true to its core, it has pushed the boundaries of the stage set world and created performances that take audiences back to stories from every time in history and create unforgettable moments. Like many other creative areas that run parallel to staged performances, technology is creating a new era of backdrops that transform the experience for the better.

The designers use a combination of lighting, and sound effects, as well as sound design, to connect with the performers, creating a stage that is evolving and alive. Technology has revolutionized the way directors and designers create productions, but it also influences how actors appear on stage.

The latest and best stage technology is useless if the designer does not fully understand it. However, the countless possibilities of the stage are created by

from its predecessors, the situation has improved dramatically.

Computer-generated effects began to come up, and digitized sounds amazed the masses with the clarity and complexity they produced. These technologies have literally transformed the stage from church productions to Broadway. Today, set designers and theater students need to learn how to use technology to improve final production.

The National Theatre in UK, pio-

option for stage and prop design, but scale models and sets have been built as part of the planning process. 3D printing is revolutionizing set design and stage performances. Designs and props are now being created using this technology to save time and costs. Set designers can now create prototypes online and send them to their customers within days or weeks, rather than months or years. This process saves a lot of time and effort and really helps to meet the tight deadlines that are very common in the industry.

Linking video and CGI in live-action performances gives directors endless opportunities to work with them, and artists invent new ways to use every component of a play in a theatrical setting to stimulate creativity.

Projection mapping allows designers to turn pretty much any object or shape on set into a display area with a video carrier image. Project mapping is nothing new, but the beauty of video projections is that they can be adapted to almost any kind of environment. Animated images and projection maps make it possible to make a performance unique, regardless of the location. Designers use this to blend the movements of the performers to create a stage that evolves and is alive.

Holographic performances are slowly taking the stage by storm, and in the years ahead, artificial intelligence could make them even more exciting. Holograms find their way onto the stage in a variety of forms, such as holographic sound effects, virtual reality and augmented reality.

From theme parks to Broadway shows, theater productions are getting innovative with the latest technology to create immersive experiences such as automated scene changes and virtual reality.

new technologies such as virtual reality, 3D printing and more.

From theme parks to Broadway shows, theater productions are getting innovative with the latest technology to create immersive experiences such as automated scene changes and virtual reality.

In the 1980s, modern technologies began to change the nature of the theatre industry forever, and although the theatre of the future is indistinguishable

neered the approach of Augmented Reality and Virtual Reality in 2016 by using virtual reality headsets to deliver experimental plays to theatre professionals, and encouraged them to think about how immersive technology could change the essence of history in a dramatic context. That same year, the RSC (Royal Shakespeare Company) brought motion capture technology to the stage for its rendition of "The Tempest."

It has only recently become a viable



photo from Pinterest

Hologram-stage-interaction - photo credit XLAB Realtime

STUDY

photo from Pinterest



Projection Mapping

Likewise, the digital information age has created a myriad of theatrical possibilities for producers of the performing arts. Automation and digital technological advances have become the standard for functioning theaters, and these tools lift the stage to create more opportunities for performances to influence culture beyond what we think. Today's digital systems generate a continuous flow of information about performance, from lighting, sound and movement to sound and lighting effects.

Sound design means being part of the experience, and indeed, it can

be argued that great sound design has been an important factor in the success of many films and TV shows over the years.

It used to take days to produce sound effects, but today directors and production teams can easily look up a sound effect, download it and upload it to a computer. Computer sound design packages can be stacked on top of each other to make every scene the director wants dramatic.

Today, sound recording devices such as microphones are now much easier to use than ever in the history of theatre. The sound of a production can be refined very easily and even a small

microphone shift makes an enormous difference to the final production. After all, the goal of a theater is to immerse the audiences in the message, and improvements in sound engineering and microphones can only amplify this transformative experience.

Critics will argue for years, but it is important that artists experiment with these tools to advance their craft.

Ultimately, it is the passion that artists have for uncovering stories that drives the theater, and the instruments are there to enhance the experience.

Theatre is a great example of how technology can have both negative and positive effects, although that it is the

way in which we use technology to broaden the possibilities for theatre that makes the difference.

It can be argued that theater and stage performances have always used the latest technology of the time to some extent. But the pace of technological change and its impact on theater performance is rapidly improving, and the theater's future may no longer be apparent from that of those who preceded it.

A play that could not exist without the latest technology is the thrill of it all: the sword fight. Computer-generated avatars, which fight actors live with swords on stage, have been integrated into many modern productions, fusing elements of reality and technology in a way that has never been seen before in any other form of theater.

In the Jan-Feb 2021 issue of the magazine, **Stage Sound & Tech** will focus on the **Manufacturers** who are reinventing the new-age stage.

ABSORB

photo credit BBN Times



Immersive Technology Theatre

MADRIX LAUNCHES ITS NEW ADVANCED LIGHTING CONTROLLER – AURA

Madrix has launched its new advanced lighting-control recorder and stand-alone playback unit – **AURA**.

The MADRIX AURA is the central stand-alone controller for simple recording and large-scale pixel mapping. It redefines what is possible in a compact control unit with exceptional performance. Developed and made in Germany the AURA is available in three versions – AURA 2, AURA 8, and AURA 32.

The AURA recorder is already prepared for wall or rack mounting making it ideal for fixed installations. With its Stand-Alone playback feature users can independently run light shows via Art-Net or Streaming ACN. It can easily control up to 2, 8 or 32 universes per device.

With the inserted memory card users can record and save their work. The controller is plug and play, so users only need to insert the card and the product works without

the need to reboot.

The Central Hub allows to connect compatible Madrix hardware interfaces or third-party nodes to provide

correct output for lighting fixtures.

The automatic synchronization helps users manage large projects by simply connecting several units across all

DMX universes for uninterrupted playback.

The built-in web configuration page gives access to change specific device settings, such as the important IP address, subnet mask, and playlist settings.

Encased in a non-conductive design for DIN rails or wall mounting, 8 on-device buttons allow for quick playback and recording control and users can also directly adjust the overall speed and intensity.

Aura is a standalone playback device, so no longer requires a computer with a Madrix key attached to it. This also means no operator is required once programming is done and transferred to AURA, hence it is most useful for all standalone applications.

All Madrix products, service and support are available with **Integrated Entertainment Solutions (IES)**. You can contact IES on iesolns@gmail.com

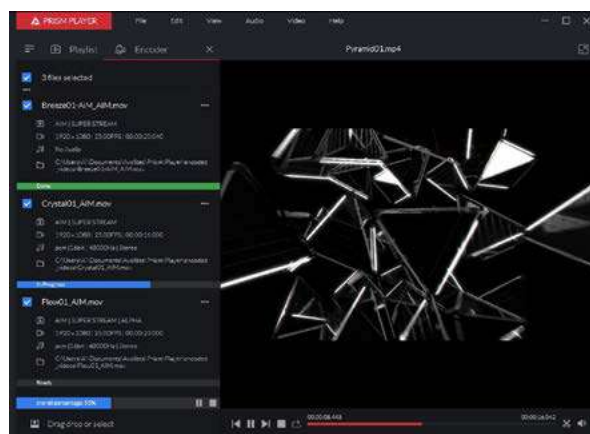


AVOLITES RELEASES PRISM PLAYER A BRAND-NEW MEDIA PLAYER

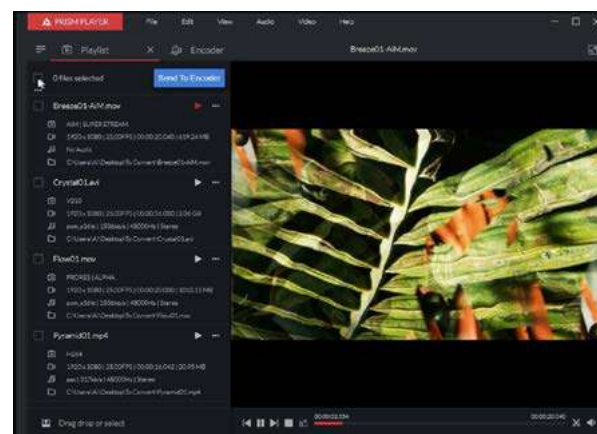
Avolites have released a new software application for media previewing and encoding called **PRISM PLAYER**. This release is the first application under the PRISM product range and can work as an auxiliary tool to the Avolites Ai video software platform.

From powering the London 2012 closing ceremonies to Glastonbury stages, Avolites' Ai video products have been going from strength to strength - attracting a host of users across the globe working on high end complex projects and installs. Earlier this year Avolites launched their Q Series Media Servers, a range of 4 media servers designed to power every performance. Now they are looking to expand their user base and introduce the discipline to new users with a new slick and stylish player.

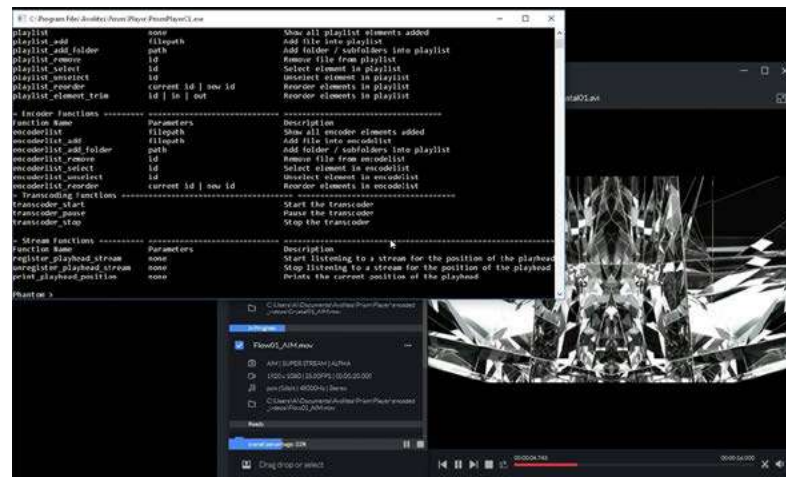
PRISM PLAYER is the first tool in the PRISM range, the platform is designed with an intuitive and clear user interface to give newer video designers and operators a stepping stone into the discipline. "With PRISM, we wanted to create a set of complementary tools that would help designers start to integrate video into their projects as well as improve the user experience for our current Ai users" says **Paul Wong**,



Clips in most video formats can be encoded quickly into the AiM codec



Create playlists to preview your content together



Unlock more advanced control with the integrated command line utility or LUA scripting

Managing Director at Avolites. "Now that we have Synergy, we really want to get as many users as we can to start looking at video and seeing how they can incorporate it into their designs."

PRISM PLAYER is a powerful tool for previewing and encoding media clips without connecting to a server or Ai application. Video clips in most common video formats can be easily encoded into the AiM codec, ready to be loaded into the server. AiM is Avolites' powerful video codec that is designed for high performance projects and shows. AiM can playback up to 16 layers of 4K content without losing visual integrity.

(Continued on page 55)

CLAYPAKY ANNOUNCES MINI B PARLED AQUA AND MIDI B

Claypaky has recently announced the launch of two new lighting fixtures – **MINI B Parled Aqua** and **MIDI B**.

MINI-B PARLED AQUA

With the increasing demand for weather-resistant fixtures for entertainment and architecture appli-

available.

MINI-B PARLED AQUA is a static version of the recently introduced MINI-B that is IP65 rated. This fixture has the same optical and electronic features as the MINI-B: a motorized 4° to 55° zoom, independent control of the central LED for effects, 2500K to 8000K colour

weight and very complimentary to the MINI-B and MIDI-B fixtures in optical performance and colour consistency.

MIDI-B

Claypaky **MIDI-B** is a compact, light, versatile, extremely bright LED wash-beam. It is a “mid-range” fixture that

this category of fixture lends to highly competitive prices but also lowest-common-denominator performance. This makes it difficult for customers to decide which fixture to choose without sacrificing performance. Claypaky's MIDI-B clearly addresses these needs thanks to its amazing cost/performance ratio.

The MIDI-B is a new LED-based moving head luminaire with 19 Osram 40-Watt RGBW LEDs, the same ones used in the popular HY B-EYE and MINI-B fixtures. Its zoom range of 4° to 50° allows for a wide variety of applications. At the narrowest angle, the beam produced is ultra-dense and concentrated, ideal for aerial effects. At its widest zoom, the MIDI-B turns into an exceptional, uniform wash light and can replace much heavier and bulkier fixtures.

The 19 LEDs are arranged in three independently controllable rings, which can be used for bright back lighting effects. Color macros, 2500K to 8000K color temperature control range, 16-bit dimmer with four curves, 25 flashes per second electronic strobe, Ethernet access complete the MIDI-B's features.



Claypaky MINI B Parled Aqua



Claypaky MIDI B

cations, Claypaky's **MINI-B PARLED AQUA** fits the needs for size, output, and features. With its seven Osram 40W RGBW LED engine, this little fixture makes it one of the brightest

temperature controls, 16-bit dimmer with four different dimming curves, 25 flashes per second electronic strobe and Ethernet access.

This fixture is compact and light-

stands out from the crowd. Fixtures in this class are in high demand because they meet many needs, from the smallest venue to the largest show.

With so many choices available,

CHRISTIE INTRODUCES FAR-UVC LIGHT FIXTURE

Christie has announced the launch of the **Christie CounterAct** line of commercial UV disinfection products with patented Care222 far-UVC light technology for cinemas, theme parks, museums, sports complexes and other indoor spaces. Unlike comparable products, the Christie fixture uses Ushio's patented narrowband filtered Care222 excimer lamps that emit far-UVC 222nm light - the only UV technology shown to continuously and significantly reduce pathogens, like coronaviruses, that may also be used while people are present, when used in accordance with specified parameters. Mass production of the new Christie CounterAct fixture starts in January 2021.

Developed by Christie's parent company, Ushio Inc., using IP licensed from Columbia University, the revolutionary Care222 far-UVC, mercury-free excimer lamp includes a proprietary short pass

filter that prevents the emission of longer wavelengths of UV light (230nm and higher) that are capable of penetrating human skin and eyes, an especially important feature that other 222nm and far-UVC products do not have.

Christie CounterAct is a line of fixtures that are simple to control remotely and can be installed on ceilings as easily as a commercial lighting fixture. It is well suited for use across a wide range of occupied, commercial areas such as entertainment venues, including lobbies, auditoriums, and restrooms, as well as other indoor spaces. Christie CounterAct fixture contains two Care222 excimer far-UVC lamps that significantly reduce pathogens on surfaces of any indoor space.

Zoran Veselic, President and



COO, Christie, added: "People are essential to the entertainment industry, and their level of comfort in public venues is paramount to the industry's success. We are very proud to be able to offer this product with Ushio's Care222 technology to our partners, and we are excited about the possibilities the technology will have in bringing customers back to the places they love, such as movie theaters and theme parks. The fact that far-UVC light – specifically, our new Christie CounterAct far-UVC fixture – can be used in the presence of people is a real differentiating factor. By harnessing these benefits as part of a user-friendly product that can be quickly deployed, we hope to provide a much-needed boost to our partners across the entertainment industry who are currently struggling to attract wary customers."

CITY THEATRICAL LAUNCHES MULTIVERSE STUDIO WIRELESS DMX PRODUCTS

City Theatrical's Multiverse wireless DMX/RDM technology is now available for film & video projects with a new line of **Multiverse Studio** products, including the **Multiverse Studio Receiver**, **Multiverse Studio Kit**, and **Multiverse Studio Add On Kit**, now available in dual band 900MHz/2.4GHz functionality for North America, and 2.4GHz band usage worldwide.

As the newest hardware building block to the Multiverse product line, the Multiverse Studio Receiver brings the advanced features of the Multiverse wireless DMX/RDM system to the film and video world with fast setup and reliability. It contains a long-life lithium-ion polymer battery giving 20 hours of use, and its full four button user interface with a backlit LED display makes setup easy and gives feedback on system performance. Each Multiverse Studio Receiver includes a DMX corded connector, which allows the external antenna to hang below the lighting fixture, giving improved data fidelity.

Two Multiverse Studio Receiver models are now available and shipping through City Theatrical dealers worldwide. The Multiverse Studio Receiver 900MHz/2.4GHz (P/N 5904) has two built-in radios, 2.4GHz (for worldwide



Theatrical's new Multiverse Studio Kit provides all the tools lighting technicians need to quickly plan, setup, and operate wireless DMX/RDM on set, including: six battery powered Multiverse Studio Receivers, one Multiverse Transmitter, one Multiverse Node, one DMXcat Multi-Function Test Tool, one RadioScan Spectrum Analyzer, and accessories.

use) and 900MHz (for use in the Americas only), which allow the user to select which single universe to receive, and which radio band to use via the Multiverse SHoW ID. The Multiverse Studio Receiver 2.4GHz (P/N 5905) can be used

worldwide on the 2.4GHz band.

Ideal as a turnkey wireless DMX solution for film & video projects of varying sizes, the Multiverse Studio Kit provides all the tools lighting technicians need to quickly plan, setup, and operate wireless

DMX/RDM on set – all within an easy to use kit with contactless charging.

Each Multiverse Studio Kit includes: six Multiverse Studio Receivers, one Multiverse Transmitter with hanging bracket and clamp (for multi universe broadcasts), one Multiverse Node with hanging bracket and clamp (for single universe broadcasts), one DMXcat Multi-Function Test Tool (to turn on and troubleshoot any lighting fixture on set), one RadioScan Spectrum Analyzer (for broadcast planning), and various accessories to keep your equipment organized, mounted, and charged.

To complement the Multiverse Studio Kit, the Multiverse Studio Add On Kit was developed to provide an easy way for film & video professionals to scale up wireless DMX projects. This kit features six Multiverse Studio Receivers in a contactless charging case. Individual chargers and USB cables are also included to enable charging or powering individual units outside the case.

These Multiverse Studio products add a new dimension to the growing Multiverse wireless DMX family of products, and align with City Theatrical's strategic direction to support film & video projects worldwide with innovative lighting accessories.

MA LIGHTING NEW PRODUCTS FOR GRANDMA3 ONPC SOLUTIONS

MA Lighting has introduced new products for its grandMA3 onPC range: the grandMA3 onPC fader wing and the grandMA3 onPC xPort Nodes DIN-Rail.

The grandMA3 onPC fader wing is designed as the perfect hardware playback expansion to the grandMA3 onPC software. In combination with this free of charge software, the grandMA3 onPC fader wing offers the full playback capabilities and adds 2 048 Parameters to the grandMA3 onPC parameter count.

The range of grandMA3 onPC xPort Nodes DIN-Rail are specifically designed for the ever-increasing demands in fixed installation applications to build a reliable and stable backbone of synchronized data transportation. All Nodes are remotely configurable from any console or onPC station within the session to provide easy access to

DMX output or DMX input.

The grandMA3 onPC range offers powerful and easy to use solutions that are a cost-effective entry into the professional lighting world of MA Lighting.

It consists of two components – the free-of-cost, easy-to-install and -use grandMA3 onPC software for MAC and Windows, plus the powerful onPC hardware solutions.

All grandMA3 onPC products are based on MA's decades of experience in the development of lighting control solutions and networking components. This MA DNA makes these solutions unique in the market. MA users know that they can rely on the best hardware as well as highly efficient, free-for-life software that is continuously being developed to meet current and future demands.

The grandMA3 onPC software delivers the same performance and uses the same software functionality as the



grandMA3 full-size, light and compact models. Events and installations with a maximum of 4 096 parameters are the perfect scenario for the application of the grandMA3 onPC solutions.

The scalable grandMA3 onPC solution system is the perfect solution for budget-sensitive events and installations.

Different hardware options in combination with the free-of-charge grandMA3 onPC software build the basis for a genuine lighting control system: just add a monitor, and it's ready to go! The showfiles of the grandMA3 onPC solutions can be used across the entire grandMA3 system.

CHAUVET LAUNCHES A RANGE OF LIGHTING FIXTURES

Chauvet Professional along with Chauvet DJ has launched a range of lighting fixtures with a range of new features.

COLORado Batten Q15

The new IP65 rated **COLORado Batten Q15** features an array of rigging options that make it right at home in a wide range of designs.

The adjustable trunnions on this one-meter long RGBW LED batten, which can be adjust without tools on its integrated track, have been given an even greater degree of versatility with the addition of ¼ turn omega brackets.

Adding to the **COLORado Batten Q15**'s adaptability is a new system for joining different units together. Integrated into the end caps of the fixture is a system to connect units seamlessly for perfect row alignment. Since these attachments are weight bearing, the **COLORado Batten Q15** can be hung "icicle style," or arranged in tower configurations using the included hanging/floor mount plate.

"Given the demands of today's market, when lighting rigs are being set up in many different types of settings, we feel that adaptable rigging options have never been more important," said **Albert Chauvet**, CEO of Chauvet. "The **COLORado Batten Q15** combines a high degree of rigging versatility with outstanding performance features."

Among those performance features is the intense output from the new fixture's 15 20-watt LEDs, which render beautiful and vivid colors and lend themselves to sizzling pixel mapped displays without the "skittle" look often associated with battens.

Capable of transitioning quickly from a smooth color wall wash to a stunning effect, the **COLORado Batten Q15** features an elliptical 42 – 15-degree

beam spread, a stowable glare shield, color temperature presets from 3200 K to 10000 K, and selectable smooth dimming curves.

Designed to excel indoors or out, and in broadcast studios as well as on concert stages, the **COLORado Batten Q15** is intended to be as versatile as it is reliable. "Our customers are being asked to be more flexible and imaginative than ever today," said Chauvet. "We developed this product to help them meet that challenge."

Ovation H-55FC

CHAUVET Professional has made an addition to its popular line of Ovation house lights. The new, compact Ovation H-55FC offers theatres, recital halls, houses of worship, and other venues greater versatility by fitting seamlessly into smaller spaces.

The RGBAL fixture works with the larger H-605FC, as well as other Ovation house lights, to provide a smooth even field of light throughout a room. Its removable fixture yoke, scone mounting kit, and recess mounting simplifies the installation process, even in tight quarters. Adding to its versatility, the new house light features interchangeable lens plates to adapt to different mounting heights.

Ideally suited for applications that need to eliminate distracting background noise, the convection cooled Ovation H-55FC operates in complete silence. The fixture's RDM and W-DMX control offers greater flexibility.

Weighing in at only 7.4 lbs. (3.4 kg.) and measuring 13.14x 6.92 x 4.52 inches (334 x 176 x 115 millimeters), this compact house light packs a powerful array of performance features including 16-bit dimming and a selectable red shift, as well as virtual color and color temperature presets.

Given the quality of its light and its impressive collection of performance features, this quiet, little fixture will make a big contribution to house lighting solutions.



Wash FX Hex

Wash FX Hex, Kinta HP, 6Spot RGBW, Intimidator Beam Q60 and Intimidator Scan 360

Covering a broad product range, from washes, to movers, to pin spots,



Kinta HP

the new fixtures from Chauvet DJ represent the latest in lighting technology. Many of them offer advanced DMX control features.

Among the new wash units are the **Wash FX Hex**, a multi-purpose effect light that has hex color (RGAW+UV) LEDs, and six chasing zones, as well as the **Kinta HP**, which features dazzling displays of thousands of multi-colored beams that burst from this compact high-powered LED effect light. The **Kinta HP** boasts new color mixing capabilities as it is the first CHAUVET DJ effect light to feature an innovative grouping of a CMYO (cyan, magenta, yellow and orange) LED as well as an RGBW (red, green blue, white).

In the spot effect category, the new **6Spot RGBW** is a complete Pack-N-Go lighting solution fitted with high-intensity quad-color (RGBW) LEDs that allows



Intimidator Beam Q60

users to achieve total room or stage coverage with six individually adjustable heads, all of which are on one bar for easiest setup and teardown.

The Intimidator line has been expanded with two new movers: The **Intimidator Beam Q60** and the **Intimidator Scan 360**. With full 360-degree pan and tilt, the ultra-fast beam unit is the first Intimidator without a color wheel. Instead it is fitted with a bright 60-watt RGBW color mixing LED. Intimidator Beam Q60 has powerCON-compatible power input/output connections for power linking and a ¼-turn hanging bracket allows for quick removal when needed.

Intimidator Scan 360 is fitted with a 100 W LED designed for mobile performances. Intimidator Scan 360 delivers razor sharp and whip-fast beams. The fixture packs a crisp, 3-facet rotating prism to split the beam and cover larger areas. Motorized focus projects crisp gobos from nearly any distance.

The **D-Fi XLR** cutting-edge technology provides instant wireless communication through compact battery-powered wireless D-Fi receiver (**D-Fi XLR RX**) or transmitter (**D-Fi XLR TX**) units that plug directly into the XLR port of DMX-compatible lights. The D-Fi XLR Pack includes 1 transmitter, 3 receivers and 1 multi-charger.

EZPin Zoom Pack takes pin spot lighting to new heights of versatility with its manual zoom adjustment. The unit is equipped with a handy magnetic base that affixes to most metal surfaces, eliminating the need for clamps and the rechargeable battery allows the fixture to be placed anywhere.

In addition to these new products, CHAUVET DJ is offering a convenient new packaging option for one of its pin spots with the introduction of EZLink Par Q1BT Pack. EZLink Par Q1BT Pack bundles four EZLink Par Q1BT fixtures and one IRC-6 remote into an easily transportable VIP gear bag.

AVOLITES RELEASES PRISM PLAYER...

(Continued from page 52)

PRISM PLAYER also supports the HAP codec, so clips from other servers can be previewed and transcoded to be used in Ai. Clips can be encoded in batches to save time.

Content rendered in AiM can also be previewed without uploading to a server. The software also includes a playlist function to preview different pieces of content together for a show or project. Playlists can also be saved and worked on later.

"For anyone involved in motion graphic production, programming shows or performing on shows with Ai

media servers and AiM codec, PRISM PLAYER is an invaluable piece of software which will make everybody's lives much easier and I couldn't recommend it highly enough" says **Ed Shaw**, Managing Director of NEICO. With PRISM PLAYER, his team can view and make quick edits to vast numbers of media clips at one time and can then easily check content before delivering them to the client.

All Avolites products, service and support are available with **Integrated Entertainment Solutions (IES)**. You can contact IES on iesolns@gmail.com.

ACOUSTIC AND AUDIO SYSTEM DESIGN FOR SMALL ROOMS

- PART 4

By - Rahul Sarma, CEO, Menura Acoustic Labs
in collaboration with Sound Wizard



In Part 3 of the series, Rahul spoke about the science behind absorption and diffusion and how to effectively use both to achieve the desired targets for a particular space. Having explored small room design from an acoustic perspective, this part 4 of the series explores the electro-acoustic considerations for a space.

We will move into electro-acoustic considerations for a space. We will begin with an exploration of two main system design goals which will determine the entire design direction for a project.

Target SPL (Sound Pressure Level)

While this may seem like quite an obvious design goal, it is often (and surprisingly) overlooked, especially for “hi-fi” home cinema design. Determining the desired SPL level at the listeners position based on the application is the first step towards determining system requirements. For example, Dolby Atmos guidelines require 105 dB continuous SPL for each LCR speaker and 103dB SPL for each surround speaker at a reference listening position. It follows reason that amplifier and speaker selection can only begin after identifying this target and understanding how sound propagates from a speaker to any point

in a room. The measured SPL at the listening position can be affected by the placement of speakers, angling, and the amount of acoustic treatment in the room.

It is also extremely important to incorporate headroom into your calculations, since adequate headroom is the best way to ensure a system is robust and not susceptible to damage from sudden spikes in SPL. Headroom simply describes the difference between the maximum system power and the power of the maximum signal the system is asked to handle. A system that is not constantly driven to its limit will have longevity and subsequently face less down-time over its lifetime. Dolby Atmos guidelines recommend

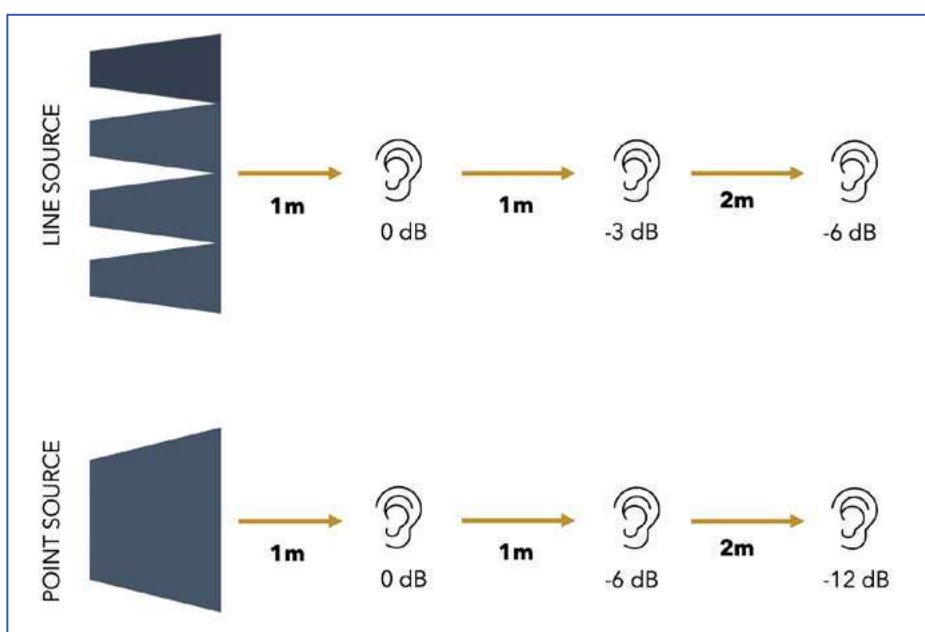


Fig.1

3dB of headroom, which essentially amounts to double the amplification! Since dB is measured on a logarithmic scale, 6dB of headroom requires 4 times the calculated amplifier power. As you

can see, headroom can be a significant investment, so it is important to plan for it right from the start.

The inverse square law describes the loss over distance in free field as

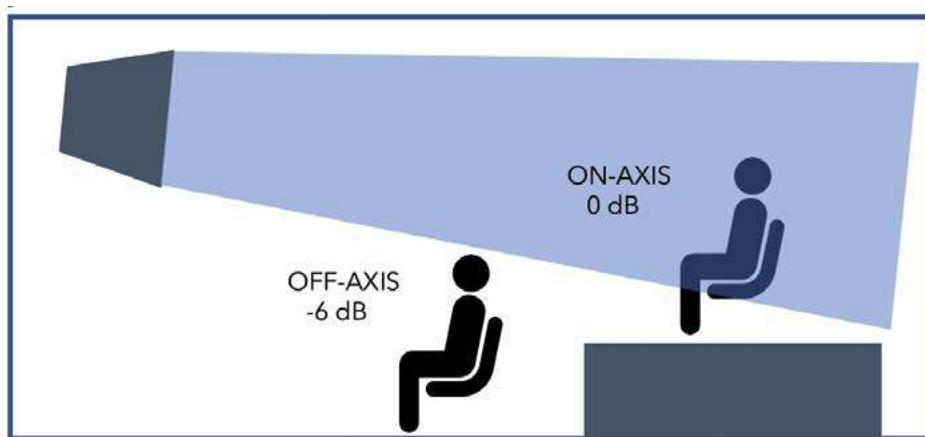


Fig.2

6dB SPL for every doubling of distance from the source. The reduction is lower indoors due to reflection from other surfaces, although a highly absorbent room will still result in a significant loss over distance. To further complicate matters, we perceive a reduction of a source by 10dB to be half as loud. In a control room or listening room with a single seat/row of seats, this isn't a problem. When a listening space has multiple rows, however, this becomes a serious consideration. A 10dB difference from the first to last row of a listening space is just not palatable, because it means that people seated in different parts of the room will have wildly differ-

speaker selection as well as positioning/aiming. The 6dB per doubling of distance is made based on the assumption that the speaker is a point source and hence produces a spherical wavefront. A line source, however, produces a cylindrical wavefront which results in a reduction of only 3dB per doubling of distance (Fig. 1). Line arrays have been the clear choice for large venues for a long time, but advancements in speaker technology mean that ultra-small line arrays are not out of place in small rooms

standing the nuances of loudspeaker coverage are the key to optimizing your design. Sound Systems: Design and Optimization by Bob McCarthy is must read for system design engineers, and it goes into great detail about the following topic. In brief, however, speaker coverage angle is the angular spread from on-axis (0 dB)

Desirable frequency response

An in-depth understanding of the frequency response of a speaker (measured at a listening position) is a pre-requisite to any form of acoustic or system design for a critical listening environment. Fig 3 describes the relationship between frequency and types of sound sources, in order to help cement this concept in your mind. We already discussed the frequency spectrum as it relates to acoustical design, but it is no

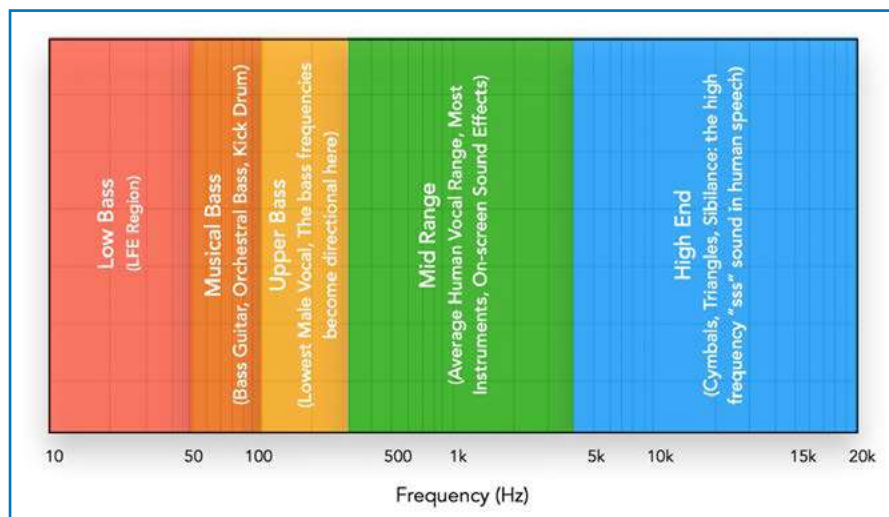


Fig.3

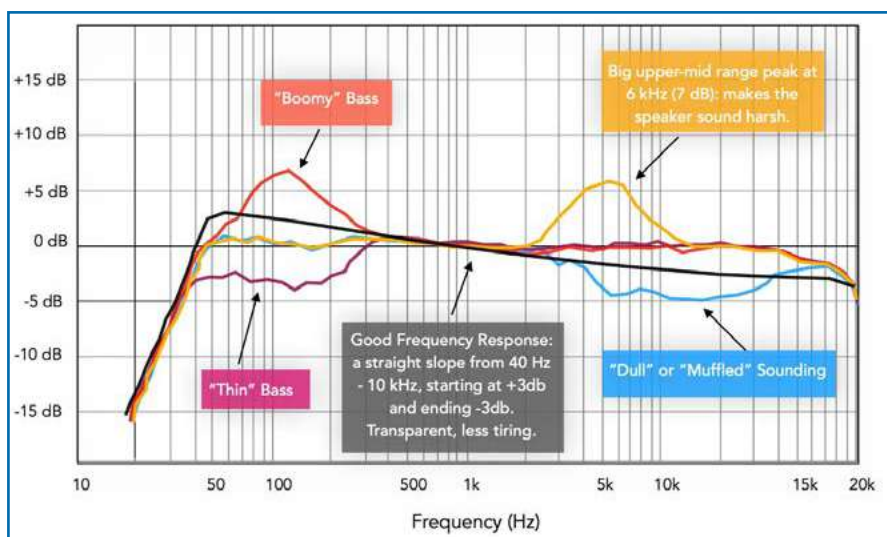


Fig.4

ing listening experiences. There are a few ways to address this issue, through

any more. When using a point source, under-

to off-axis(-6dB). The image below illustrates this concept. Using this knowledge to our advantage, loudspeakers can be aimed to listener seats at the rear so that they are on-axis (0dB), which compensates for the loss with distance described by the inverse square law.

The seats in the front can be off-axis(-6dB), so that the SPL measured at these seats will no longer be much higher than the seats at the back (Fig. 2). This may be an over-simplification of the process, and it may not apply to all situations, but it still gives you an insight into the strategies used to achieve a target SPL at listener positions.

less relevant to system design.

Changes or tweaks to a system that can demonstrably effect the measured frequency response are usually the best way to invest time and money into system design. The performance of a system over the frequency range is what determines its tonality. Fig 4 is a visual representation of this concept.

A relatively flat frequency response is the ultimate design goal for a system, since it results in a "transparent" output. In other words, you will experience content in the way the content creator intends you to, assuming of course that the content was created in a professional listening environment! It is also important to try to achieve a consistent frequency response across all listening positions, although this may not always be possible.

In Conversation with Meghdeep Bose... (Continued from page 44)

of the same frequency. The result is a realistic stereo field that has reasonable compatibility with mono playback.

While XY technique is the most natural of all the stereo techniques, however if we are looking at XY with an exaggerated feel, that is where ORTF comes in.

Which models of Neumann Mics did you suggest for the various types of stereo mic techniques in this session and why?

We have suggested Neumann TLM 102, TLM 103 and KM184 microphones for miking both tabla and sarangi.

The TLM 103 is the ideal large diaphragm microphone for all professional and semi-professional applications requiring the perfection in the sound quality. This microphone is perfectly suited for vocals and audio drama productions in high definition as well as for demanding samples production and instrumental recordings. The TLM 103 features unattained low self-noise at the highest sound pressure level transmission. The capsule has a cardioid pattern, is acoustically well-balanced and provides extraordinary attenuation of signals from the rear.¹

The TLM 102 is one of the most compact microphones which makes it perfect for a room that has lesser space. The TLM 102 is ideal for vocal and instrumental recordings. Its finely tuned sound signature especially accents the area of 8 to 12 kilohertz which is crucial for human voices. The recordings get a silky elegance which is typical for large diaphragm microphones; the voice gets a noble presence in the overall mix.²

To aspiring young musicians and

sound engineers, what tips would you like to offer with regards to Indian instruments and basic recording techniques?

I'd like to say that above all sonics and techniques stands the art of writing. Anything well written and well performed will outshine any technical short-comings.

A good quality instrument, well written part and a great performer are the perfect combination to be a great source to capture.

¹ <https://www.zenproaudio.com/neumann-tlm-103-nickel>

² <https://www.neumann.com/homestudio/en/tlm-102>

Mixing Consoles

AVID Venue S6L

Mix and record live productions of any size with ease. Avid VENUE | S6L delivers the unmatched processing power and sound clarity artists and engineers rely on to present the best show possible. From direct AAX and Waves plugin support and 128 tracks of Pro Tools recording, to full system modularity and 300+ processing channels, the S6L unified platform gives you the mixing efficiency, creativity, and flexibility you need to meet the demands of any gig.

Main Features include:

- engaging and immersive aural experience
- Open Layouts in any system with ease
- With support for Luminex GigaCore 26i and GigaCore 10 AVB switches, connect VENUE engines and I/O racks in a redundant star configuration
- With the Meters view on the Master Touchscreen, get uninterrupted continuous view of channel metering across all S6L console screens
- Tackle big productions with dual operators
- VENUE | S6L offers a choice of five surfaces that offer from 16–48 faders
- Remotely control S6L functions
- Mix monitors on iPhone or iPad
- Save time with Virtual Soundcheck
- Record shows directly with Pro Tools

Technical Specification: S6L -48D

- 12-inch daylight-visible touchscreens: 1 Master Touchscreen, 5 Channel Touch Modules
- Faders: 48 + 2 Knob Modules with high-resolution
- OLEDs and tri-color function indicators: 160 assignable knobs across 5 Channel Knob Modules
- Master Live Module: Graphic TFTs with soft buttons; Touch and Turn assignable encoder; 2 assignable faders; monitoring, layout and snapshot controls; transport controls and function buttons
- Metering: 30-segment meters per channel, with pre- and post-fade metering options; Nominal indicator, Expander/Gate status and Compressor/Limiter gain reduction



meters

- Analog inputs: 8 XLR mic/line inputs with 48V and signal present LEDs
- Analog outputs: 8 XLR outputs with mute and signal present LEDs
- Digital inputs: 4 pairs of XLR stereo AES/EBU (8 channels total)
- Digital outputs: 4 pairs of XLR stereo AES/EBU (8 channels total)
- Headphone outputs: 2 independent 1/4" TRS stereo headphone jacks
- Ancillary I/O: DVI-D video out, 5 USB 2.0 (2 rear, 2 front, 1 internal), ECx Ethernet port for wired/wireless remote control, GPIO (8 in/8 out), 2 footswitch, Linear Time Code input, MIDI I/O
- Ethernet AVB ports 2 etherCON (copper), 2 selectable as etherCON; (copper) or SFP (fiber); redundant ring topology; supports Luminex GigaCore 26i and GigaCore 10 AVB switches for redundant star configuration
- Power supply: Dual redundant, internal hot-swappable PSUs
- Height (front, rear): 3.6, 15.3 inches (91, 388 mm)
- Width: 76.1 inches (1,934 mm)
- Depth: 31 inches (787 mm)
- Weight: 212 lbs (96 kg)

Behringer Flow 8

Behringer Flow 8 is an 8-Input Digital Mixer with Bluetooth Audio and App Control, 60 mm Channel Faders, 2 FX Processors and USB/Audio Interface.

Main Features include:

- Ultra-low noise, high headroom digital mixer with wireless remote control
- FLOW App for Bluetooth remote control from iOS/Android mobile phones or tablets
- 60 mm channel faders and master rotary control with LED collar
- EZ-Gain function
- Two Midas microphone preamps with 48 V phantom power and programmable gain
- Two additional mic/line inputs on combo XLR/TRS jacks
- Two pairs of balanced stereo line inputs
- All channels with 4-band EQ and compressor, 2 FX and 2 monitor sends, while monitor and main buses feature 9-band EQ and limiter
- Built-in 10 x 2 channel USB computer audio Interface, with 48 kHz / 24-Bit resolution
- Bluetooth audio streaming for adding click or backing tracks
- Balanced main outputs on gold-plated XLR



and balanced monitor outputs on 1/4" TRS

- FLOW App with assisted set-up, unlimited mixer snapshots and intuitive, customizable Stage-View
- FX adjustment control, FX mute and tap tempo buttons
- Footswitch input for controlling FX mute/tap tempo or preset up/down functions
- Optional mic stand adapter (FLOW CLIP or P16-MB not included)

Technical Specification:

Mic Inputs

Mic inputs 1 / 2

- Type: 2 x XLR jacks, balanced
- Mic E.I.N. (20 Hz to 20 kHz): -129 dBu, A-weighted
- Distortion (THD+N): < 0.004%, A-weighted
- Max. input level: +20 dBu
- Impedance: 10 kΩ balanced, 5 kΩ unbalanced

Mic inputs 3 / 4

- Type: 2 x XLR / 1/4" TRS combo jacks, balanced
- Mic E.I.N. (20 Hz to 20 kHz): -117 dBu, A-weighted
- Distortion (THD+N): < 0.01%, A-weighted
- Max. input level: XLR: +6 dBu TRS: +26 dBu
- Impedance: XLR: 2 kΩ balanced, 1 kΩ unbalanced; TRS: 20 kΩ balanced, 10 kΩ unbalanced
- Gain range: -20 dB to +60 dB
- Phantom power: +48 V, switchable (inputs 1 / 2 only)

Line Inputs

- Type: 2 x 1/4" TRS jacks, balanced (channels 5L / 7L)
- Impedance: 20 kΩ balanced, 10 kΩ unbalanced
- Gain range: -20 dB to +60 dB
- Distortion (THD+N): 0.005%, A-weighted, 0 dB gain, 0 dBu out
- Max. input level: +22 dBu
- Guitar (Hi-Z) Inputs
- Type: 2 x 1/4" TRS jacks, balanced (channels 6R / 8R) Impedance: 2 MΩ balanced, 1 MΩ unbalanced
- Distortion (THD+N): 0.005%, A-weighted, 0 dB gain, 0 dBu out
- Max. input level: +19 dBu

From plays to musicals to Broadway shows, theatres and auditoriums require a world-class sound design system with features to suit the demands of auditorium sound. PT brings to you a range of mixing consoles that is suited for every size of show.

Monitor Outputs

- Type: 2 x 1/4" TRS jacks, balanced
- Impedance: 75 Ω , balanced
- Max. output level: +14 dBu

Main Outputs

- Type: 2 x XLR jacks, balanced
- Impedance: 150 Ω , balanced
- Max. output level: +14 dBu

Input / Output and Processing

- Frequency range: 10 Hz to 22 kHz (+0/-1 dB)
- Dynamic range, analog in to analog out: Typ. 108 dB
- I/O latency: 0.6 ms
- Signal processing: 32-bit VFP (Vector Floating Point)
- A/D - D/A conversion: 24-bit / 48 kHz
- Dynamic range: 114 dB
- Number of input processing channels: 10 input channels, 4 fx return channels

Dimensions / Weight

- Dimensions (H x W x D): 48 x 229 x 172 mm (1.9 x 9.0 x 6.8")
- Weight: 1.4 kg (3.1 lbs)

DiGiCo SD12

The DiGiCo SD12 is a 72-channel mixing console with 26 physical faders and 2 x 15" LCD high-resolution touchscreens. The SD12 is designed to provide optimum performance in live touring, corporate, install, house of worship, theatre and broadcast environments, the SD12 incorporates the latest generation Super FPGA technology and Core 2 software to deliver unrivalled power and connectivity in a compact frame.

Main Features include:

- 72 Input Channels with full processing
- 36 Aux/Sub-Group busses with full processing
- 12 x 8 Matrix with full processing
- Assignable channel layout
- User programmable macros
- Capable of redundantly mirroring with another SD12 console
- Redundant PSUs as standard



- Snapshots for seamlessly changing many parameters at once
- 2 DMI Slots to expand the I/O as desired
- Integrated UB MADI
- Offline software
- iPad control
- SD12 96 software option

Technical Specifications :

WORKSURFACE

- 26 x 100mm touch-sensitive, motorized faders
- 2 x 15" LCD high-resolution touchscreens
- 28 x 20-Segment LED bargraph meters
- 1 x 1/4" Headphone socket
- 1 x 3.5mm Headphone Socket
- 1 x USB 2.0 slot
- Integrated Light Bar

AUDIO SPECIFICATIONS

- Sample Rate: 48kHz or 96kHz
- Processing Delay: 1ms Typical (channel, SD Rack Input)
- Through L-R Buss to Stage Output @96kHz)
- Internal Processing: Up to 40-bit, Floating Point
- A>D & D>A: 24-bit Converter Bit Depth
- Frequency Response: +/- 0.6dB (20Hz - 20kHz)
- THD: <0.05% @ Unity Gain: 10dB Input @ 1kHz
- Channel Separation: Better Than 90dB: (40Hz-15kHz)
- Microphone Input: Better Than -126dB: Equivalent Noise
- Maximum Output Level: +22dBu
- Maximum Input Level: +22dBu

SIGNAL PROCESSING

- 72 Input Channels (Mono)
- 36 Aux/Sub-Group Busses
- 1 LR/LCR Master Buss (with full processing)
- 12 input x 8 output Full Processing Matrix
- 12 Control Groups (CGs)
- 2 Solo Busses
- 16 x 32-band GEQs
- 12 x Internal Stereo FX Processors

PHYSICAL

- Dimensions: 1124mm (w) x 795mm (d) x 389mm (h)
- Weight: 42kg (130kg with optional flight-case)
- Flightcase: 1270mm (w) x 570mm (d) x 1150mm (h) (Optional)
- Power Requirements: 90-260V, 50-60Hz, 232VA (140W)
- Redundancy: Internal PSU x 2
- Dire



PreSonus StudioLive 64S

The StudioLive 64S is a 64-channel mixer that brings the power of a large format console to small format digital mixing. Powered by the new quad-core PreSonus FLEX DSP Engine, the StudioLive 64S digital mixer is equipped with 76 mixing channels, 43 mix buses, and 526 simultaneous processors.

Main Features include:

- Powered by the new quad-core PreSonus FLEX DSP Engine
- 76 input-channel digital mixer with 33 touch-sensitive motorized faders
- 43 mix buses
- 526 simultaneous processors
- State Space-Modeled Fat Channel compressor and EQ plug-ins
- FLEX FX multi-effects processor with 8 slots
- 24 DCAs to control groups of channels
- 128-channel (64x64) recording over USB
- Onboard multi-channel SD recorder (34x34) with true Virtual Soundcheck mode
- AVB Networking onboard (64x64) to connect with other mixers
- User Profiles for managing multiple operators with custom permissions
- Per channel digital patching from any analog, AVB, USB, or SD Card source
- DAW Control
- Remote control every mix function from a computer, iPad, or Android tablet with UC Surface (included)
- QMix-UC (included) for iOS or Android
- Capture multitrack software included
- Advanced Studio One integration (Studio One Artist Included)

Technical Specifications :

Microphone Preamplifier

- Input Type: XLR Female, balanced
- Frequency Response to Main Output (at unity gain): 20-20 kHz, ± 0.5 dBu
- Input Impedance: 1 k Ω
- THD to Main Output: <0.005%, +4 dBu, 20-20 kHz, unity gain, unwt'd
- S/N Ratio to Main Output (Ref = +4 dB, 20 kHz BW, unity gain, A-wtd): 94 dB
- Common Mode Rejection Ratio (1 kHz at unity gain): 65 dB
- Gain Control Range (± 1 dB): 0 dB to +60 dB
- Maximum Input Level (unity gain): +12 dBu
- Phantom Power (± 2 VDC): 48 VDC, switchable per channel

Line Inputs

- Type: 1/4" TRS Female, balanced
- Frequency Response to Main Output (at unity gain): 20-20 kHz, ± 0.5 dBu
- Input Impedance: 10 k Ω
- THD to Main Output: <0.005%, +4 dBu, 20-20 kHz, unity gain, unwt'd
- S/N Ratio to Main Output (Ref = +4 dB, 20 kHz BW, unity gain, A-wtd): 94 dB
- Maximum Input Level: +18 dBu

System Crosstalk

- Input to Output: -90 dB (Ref = +4 dBu, 20 Hz-20 kHz, unwt'd)
- Adjacent Channels: -87 dB (Ref = +4 dBu, 20 Hz-20 kHz, unwt'd)

XLR Outputs

- Type: XLR Male, balanced
- Maximum Output Level: +24 dBu, ± 0.5 dBu
- Output Impedance: 100 Ω

Tape Outputs

- Type: RCA Female, unbalanced (stereo pair)
- Maximum Output Level: +18 dBu, ± 0.5 dBu
- Output Impedance: 100 Ω

Physical

- Height: 6.51" (165.36 mm)
- Width: 32.37" (822.21 mm)
- Depth: 22.97" (583.48 mm)
- Weight: 37.2 lbs. (16.9 kg)

Soundcraft Vi3000

The Soundcraft Vi3000 features an all-new appearance with a more efficiently designed control surface, 36 faders, 24 mono/stereo busses and a sweeping black screen panel with four Vistronics II touchscreen interfaces with sleek, updated 3D graphics. Because the Vi3000 has four touchscreens, it's the only console in its class that can be used by two engineers at the same time.

Main Features include:

- Virtual Vi offline set up
- VM2 radio mic status monitoring
- BSS DPR901ii Dynamic EQ
- Copy/Paste channel bus and FX settings
- Copy/Paste processing elements
- Settings Library
- Sophisticated Cue List Management
- Advanced events integration
- Automated microphone mixing
- Snapshot crossfades
- ViSi Remote iPad app
- All busses to stereo
- 4 Aux send points
- Aux VCA mode
- Auto-increase of ambient mic levels in monitor mixes between



Technical Specifications:

- Frequency Response - Stagebox Mic input to Line output: +0/-1 dB, 20Hz-20kHz
- AES/EBU In to AES/EBU Out: +0/-0.2dB, 20Hz-20kHz
- THD: 22Hz-22kHz
- Stagebox Mic In (min gain)/(max gain) to Local Line Out: <0.003% @ 1kHz; <0.020% @ 1kHz
- Local Line In to Line Out: <0.003% @ 1kHz
- Mic Input E.I.N: <-126dBu (150 Ω source)
- Residual Noise: -91dBu Stagebox line output; no inputs routed, Mix fader @0dB
- CMRR: 80dB @ 1kHz
- Sampling Frequency: 48kHz
- Latency: Stagebox Mic Input to Local Line output: < 2ms @48kHz
- AES/EBU Input Sample Rate: 32-108kHz (with SRC enabled)
- DSP Resolution: 40-bit floating point
- Input & Output Levels - Mic Inputs/Line Inputs: +28dBu max/+22dBu max
- Input & Output Levels - Line Outputs: +22dBu max
- Input & Output Levels - Nominal Operating Level: +4dBu (-18dBFS)
- Input & Output Impedances - Mic Inputs: 2k Ω
- Input & Output Impedances - All other analogue Inputs: >10k Ω
- Input & Output Impedances - Line Outputs: <75 Ω
- Input & Output Impedances - AES/EBU Outputs: 110 Ω
- Oscillator: 20Hz to 20kHz/Pink/White Noise, variable level
- EQ (Inputs and Bus Outputs) - HF: 20Hz-20kHz, +/-18dB, Q=0.3-8.7 or shelving
- EQ (Inputs and Bus Outputs) - Hi-Mid: 20Hz-20kHz, +/-18dB, Q=0.3-8.7
- EQ (Inputs and Bus Outputs) - Lo-Mid: 20Hz-20kHz, +/-18dB, Q=0.3-8.7
- EQ (Inputs and Bus Outputs) - LF: 20Hz-20kHz, +/-18dB, Q=0.3-8.7 or shelving
- Height (Console Only): 351mm (13.8")
- Width (Console Only): 1446mm (56.9")
- Depth (Console Only): 803mm (31.6")
- Weight (Console Only): 54kg (119lb)

Yamaha Rivage PM10

In terms of sound quality, operation, functionality, reliability, expandability, and more, the RIVAGE PM10 is a thoroughly refined flagship that defines the direction for future generations.

Main Features include:

- Hybrid Microphone Preamplifiers
- VCM Technology Models SILK Processing
- Automatic Mixer Built In
- Channel EQ and Compression Refined to Unprecedented Levels
- Plug-in Effects Include Rupert EQ/Comp, TC Electronic Reverb, and More



- Complete Yamaha Selected Channel Interface
- Touch Screen and Fader Strip Merge for Intuitive Control
- A Monitor Section to Match Any Job
- Overlay Filter for Rapid Response to Sudden Changes
- Isolate filter, for Enhanced Scene Recall Versatility
- Multitrack recording via an optional Dante audio network

Technical Specifications:

Mixing Capacity

- Input Mixing Channels: 144mono
- Mix Buses: 72
- Matrices: 36 (Input to Matrix supported)
- Stereo Buses: 2
- Mono Buses: 1
- Cue Bus: 2

Local Connectors

- Analog Input XLR: 8
- Analog Output XLR: 8
- Expansion Slots HY Slots/ MY Slots: 4 (DSP-R10)/ CS-R10: 2 DSP-R10: 2
- Digital In/Out AES/EBU: 4
- GPI IN/OUT (D-Sub): 8 (CS-R10) / 8 (DSP-R10)
- MIDI I/O: In / Out (CS-R10) ; In / Out (DSP-R10)

User Interface

- Display: 15-inch Touch Panel x 2
- Faders: 12 + 12 + 12 + 2
- Selected Channel Encoders: All Parameters
- Channel Encoder: Yes
- Channel Name / Color Display: Yes
- Custom Fader Banks: Yes (6 x 2 on each bay)
- User Defined Keys: 12 (x 4 banks)
- User Defined Knobs: 4 (x 4 banks)
- Touch and Turn Knob: Yes
- Monitor Level Knob: Yes (2: A and B)

Input Channel Functions

- Gain Compensation: Yes
- Silk: Yes (with RPiO and OMNI IN)
- Digital Gain: Yes (-96dB ~ +24dB)
- ATT: No
- HPF: 20Hz~2000Hz, -6/-12/-18/-24dB/oct Selectable
- PEQ: 4 Band Full PEQ (4 algorithms, RTA overlay support)
- Dynamics 1: Legacy Comp / Comp260 / Gate / De-Esser / Expander / Ducking
- Dynamics 2: Legacy Comp / Comp260 / Gate / De-Esser / Expander / Ducking
- Input Delay: Yes (0ms ~ 1000ms)
- Pan: Center Nominal
- DCA Group: 24 (Output DCA support)
- DCA Rollout: Yes
- MUTE Group: 12
- Number of Inserts: 4 slots on each 2 insert point
- Direct Out: Yes

Plug-in

- Number of Slots: 384
- Number of Effect Programs: 50w

IS THE THEATRE A TEMPLE?

Look at any Construction Trend since civilisation began. After inventing the wheel man learnt how to move and rearrange stone, brick and wood to create a comfortable and protected home.

Compare Homes, Offices and Hospitals of that time to what we are building today.

Amazing Developments.

Now look at Theatres. I have seen many Theatres built thousands of years ago with better acoustics, backstage space, set making facilities than many spaces that are being built today.

There are some Ancient theatre's that can have their centre well flooded with water to provide atmosphere. There is a Theatre in Israel (Built in Roman Times) which has a section where commodores are laid out (downwind) so play goes could relieve themselves and not miss a moment of action.

There are theatres in Rome that Built Concession stands to sell Nuts

of something extraordinary.

Which Theatre today can you think off that can host these spectacles.

British National Theatre's Olivier Theatre and Indeed Mumbai's Tata Theatre have more in common with Roman Theatre Design than anything built this century.

The Globe Theatre in London was authentically re-created with identical material almost 400 years after it was originally conceived. It is still Open air – so the standing Room fans and indeed the actors are open to the weather. Rain Snow and sun. While the Seated areas are covered with thatch.

To This day very Little Artificial Light or Sound Equipment is allowed into the space. Yet It hosts a packed season of shows every summer.

In India – even though we have a great tradition of the performing arts, very few ancient theatres exist. Understandable, cause most traditional activity was dance or music based. Usually staged within a Temple's premises.

Which explains why very few tradi-

in Mumbai. Look at all the activity and energy it packs into its tiny space.

I am sure all of us have walked through spaces that are many times its size but don't have even a shred of its energy and dynamism.

Another fact is that most auditoriums – even those used for professional performances are attached to educational institutions.

Way Back in the 1940's English language Theatre in Mumbai was born on the stage and quadrangle (some include the canteen) of St. Xavier's College.

Its panelled walls and stone courtyard still a favourite of film makers. Sadly does not host as much theatre activity as I personally would like to see.

Fans of Malhar Festival and Janfest. Why are you not demanding more?

I am sure similar festivals exist around the country. May they grow and get as many students involved into the arts as you can. In any capacity. In any form.

So many legends exist in how Theatres were built.

In Oslo the Opera House is designed for patrons to walk up onto its roof to enjoy the view.

In another Scandinavian country (Apologies forgetting the Tongue Twisting Name) the theatre designers insisted on installing a seamless scrim that stretches across its entire rear wall.

So the building was completed – without a roof. A Crane dropped the screen in place (as there was no way for it to be brought in any other way. And then the roof was assembled over the building. A Unique enterprise and definitely on my Bucket List of places to visit.

Come On Theatre designers – Get inspired.

One sad fact I seem to have noticed – But don't have data to back it up. Of all the theatres that I have been involved with in building – Not One of them had a Theatre Artist in their core team. Mind you they had may 'consultants'. Sadly a huge amount of the consultant's advice was ignored.

Some of the premier theatres of this country that have had crores spent on them are handicapped with amateur flaws.

You will have to buy me a drink if you want to know details. And I will buy you a drink to drown your sorrowful stories of spaces and flaws you know of that I

have not found.

Performances spaces are sacred. Especially for the performer. An inspired LIVE performer can produce a performance that moves an audience.

A LIVE Performance space MUST be built for a performer. Of Course audience comfort is important. The current debate of how many Ladies Toilet stalls as compared to Gents Toilet stalls as a ratio to liquid refreshments sold before and during a performance are important factors.

But to build a rake stage so that every seat can see every corner of the stage is perhaps more important.

It's like when you go to a temple. Isn't it important for the deity to be comfortable in its home?

Isn't it important for the sinner skulking in the back rows to hear the sermon?

Isn't it important to know that your footwear is safe while you go barefoot into the inner sanctum?

In the theatre you must feel safe in the shadows as the performer creates an alternate universe for you to be sucked into and experience through his words and expressions.

Isn't that Like Reading the Gita or the Koran or the Bible?

To experience Life's choices open out within You.

So the next time you visit a Theatre be as exacting as you are while visiting a Temple.

Here's Wishing You Fulfilling Journeys to Both. Temple & Theatre.

One sad fact I seem to have noticed – But don't have data to back it up. Of all the theatres that I have been involved with, in building – Not One of them had a Theatre Artist in their core team. Mind you they had may 'consultants'. Sadly a huge amount of the consultant's advice was ignored.

and Cool drinks along the passages that patrons took to reach their seats.

The Roman Coliseum has an underground network of lifts to move heavy props and wild animals into the middle of the amphitheatre. And a drainage system to clean the blood off its vast central arena.

Drawings exist of the central arena made up to look like tropical forests, running rivers and abstract Rock Placement to spice up the gladiator contests.

Pompeii has an entire school to train Gladiators to fight so that the bots were entertaining and the ladies could enjoy muscled men stretching themselves in the pursuit

tional performances have large casts.

Our Epics - both the Ramayana & the Mahabharata have huge casts and most of the older cities have a designated Ram Lila maidan where the epics are produced every year at festival time.

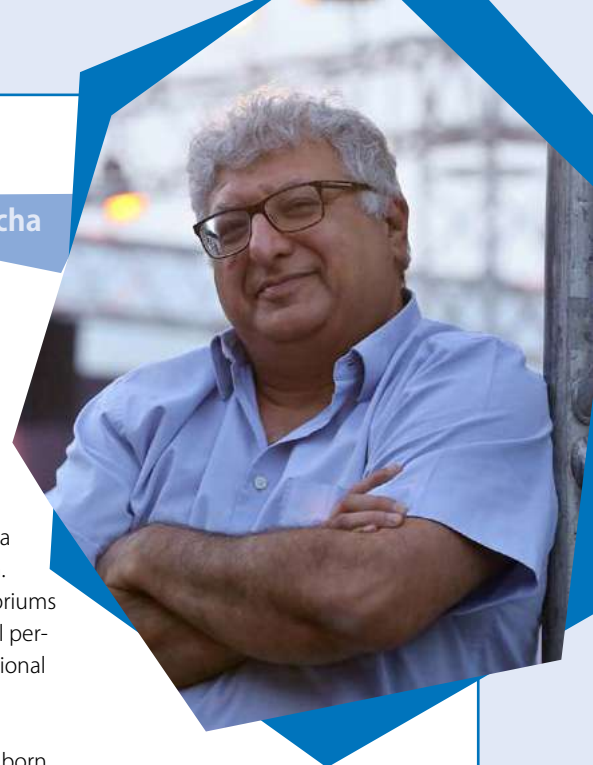
Today vast amounts of electronic equipment are used in today's productions. I wonder how Ram or indeed Ravaan projected their stories to the back rows of a maidan before mikes were invented.

Of Course the final burning scene does not need any additional Lights or sound to underline the drama.

Why am I going on?

To remind Theatre designers today, of what they are missing.

Look at the delightful Prithvi Theatre



THINK

Promotion Index

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PALM technology

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STUDIO ISSUE

Main Product Focus
Studio Monitors

Other Product Focus
 Mixing console,
 Studio Headphones,
 Studio Microphones

Read the entire dope in the upcoming
January-February 2021

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Create
 Record
 Play

PIONEER DJ LAUNCHES DJM-S11 2-CHANNEL DJ MIXER AND DDJ-1000SRT-N

Pioneer DJ has introduced two new DJ mixers – the DJM-S11 professional 2-channel DJ mixer and the Limited Edition DDJ-1000SRT-N in gold.

DJM-S11 professional 2-channel DJ mixer

The new **DJM-S11** professional 2-channel, 4-deck battle mixer brings enhancements to various elements from its predecessor, the DJM-S9, and offers a host of brand-new features to help DJs perform more freely with Serato DJ Pro or rekordbox.

The DJM-S11 allows DJs to spend more time focusing on their mix thanks to the mixer's 4.3-inch customizable touch screen, which has all the information DJs need. Browse tracks, check on playback positions and waveforms, and dynamically change the texture of the music by moving a finger across the Touch FX screen. With Touch MIDI, DJs can even trigger functions in their DJ software.

With the Deck 3/4 Control, DJs can play up to four tracks at once on the DJM-S11. The additional decks appear on the touch screen with a selection of controls so artists

can browse and load tracks, adjust EQs, set loops, trigger Hot Cues, and more. If using Serato DJ Pro, with Deck Move DJs can move tracks from deck 1 to 4 and deck 2 to 3 without a break in the music –freeing up the main decks to prepare to drop in the next track. DJs can also switch on Dual Deck control to use one fader, knob, or control vinyl to manipulate the tracks loaded to decks 1 and 3 or 2 and 4. This means DJs can scratch two tracks at once, add effects, or adjust their volume simultaneously.

The DJM-S11's Performance Pads are larger and the MAGVEL FADER PRO has been strengthened to give more stability when scratching. There's a host of fresh features including, 4.3-inch touch screen, Deck 3/4 Control, 22 built-in effects, Smooth Echo, a new effect that can automatically engage when DJs move the faders or hit the pads they've assigned as triggers. Sound quality has been improved too, with clear, powerful audio that reflects every nuance of the performance.

The DJM-S11's built-in USB hub enables to directly connect with CDJs and



DDJ-1000SRT-N

the DDJ-XP2. It's also compatible with Serato DJ Pro and rekordbox straight out of the box with no need for license keys, so simply plug in and play. For DJs who want use another DJ application - Every fader, knob, and button are fully MIDI mappable.

Limited-edition DDJ-1000SRT-N

Pioneer DJ's new limited-edition unit adds a blazing gold color to the DDJ-1000SRT 4-channel performance DJ controller for Serato DJ Pro.

Finished in a gold color, the DDJ-1000SRT-N includes all the functions and performance features from the original unit. The familiar club-style layout is inherited from our CDJ + DJM setups, and professional elements include the low-latency full-size jog wheels and the slick MAGVEL FADER for tight scratching.

The color On Jog Display gives important track information in the center of each jog wheel. Build excitements and create huge drops with 4 Sound Color FX and 14 Beat FX. And with 16 Multicolored Performance Pads (8 per deck) DJs can trigger various features including Hot Cues, Slicer, and Pitch Play to put their own spin on each track and keep the audience in raptures. There are multiple inputs and outputs that enables users to assemble different setups.

The limited-edition DDJ-1000SRT-N is on sale in selected regions (only available at specific retail stores in Asia Pacific, the Americas and Latin Americas – not available in Japan, China and EMEA regions).

RELOOP LAUNCHES CLUB-STYLE MIXER AND STAND HUB

Reloop has announced a new mixer **RMX-44 BT** and a multi-functional Stand Hub.

Reloop RMX-44 BT

The Reloop RMX-44 BT is a 4-channel Bluetooth DJ club mixer in classic design, including a Bluetooth input with cue function, which offers numerous application possibilities.

With 9 inputs and 4 outputs, as well as a 3-band EQ and bipolar filter unit per channel, the

RMX-44 BT is not only a full-fledged DJ club mixer, but thanks to Bluetooth compatibility and the 2-band EQ microphone section with talk-over function, it is also ideal for bars, mobile DJs and home setups.

The Smart Connectivity Bluetooth input, enables Smartphones, laptops as well as iPad's and other devices can be connected quick and easily. In combination with its numerous other connection opportunities, the RMX-44 BT is up to any challenge and adapts perfectly to any application.

For creative frequency mixing, the RMX-44 BT offers dedicated, bi-polar sound filters per channel to allow smooth low- and high-pass fading. The fully digital sound architecture enhances your sound to be clear and punchy in every situation.

The sturdy metal construction and scratch-resistant surface with a deep black metallic finish make the RMX-44

BT extremely durable, despite frequent use and transport. The fabrication meets the industry's highest quality standards and is visually and haptically particularly attractive. In addition, the stylish and timeless design blends perfectly into any DJ setup.

Reloop Stand Hub

The Reloop Stand Hub is an innovative combination of multi-functional laptop stand and advanced USB hub with power delivery port. It is ideally suited for DJs and producers thanks to a stable power supply and networking of hardware peripherals.

The soft contact surfaces protect and provide a non-slip surface for your equipment. The deep black powder coating in a scratch-resistant finish makes the Stand Hub very resistant even when used frequently.

Thanks to the push-lock mechanism, 6 possible setup variants offer a wide range of applications. Due to the space-saving and compact design, these are ideal for use in studio or live



Reloop Stand Hub

setups.

MacBooks and laptops with USB-C power connection can be powered directly from the Stand Hub via the USB-C PD port. Works as active or passive USB-C / USB-A hub with all laptops.

The Stand Hub has 4 high-retention USB-A 3.0 ports, one USB-C port for connecting laptops and smart devices and one USB-C PD port for both, passive and active use.



Reloop RMX-44 BT

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DIGITAL 6000

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The Digital 6000 with superior RF technology keeps the limited frequency spaces free for more channels and allows operation in an equidistant frequency grid where neither transmission performance nor audio quality are compromised. The series is more straightforward to use and is compatible with dozens of capsule heads and antenna options. It goes without saying that the superior Digital 6000 platform is setting standards today – and staying ready for the challenges of tomorrow.

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