

## Bishwadeep Chatterjee

shares his unique perspective  
and experience on Music  
Recording and Sound Design



### Studio Install

**Shankar Mahadevan's** new studio  
**Lambodara Studios** designed by  
Sound Wizard

**Mrinal N's** dream project -  
**Stained Class Productions**

### Features

Renowned **Independent Music Producers** talk about their recording approaches and technology

In Conversation with  
**Sreejesh Nair**



**BOSE** reinforces sound at  
Sardar Patel Stadium,  
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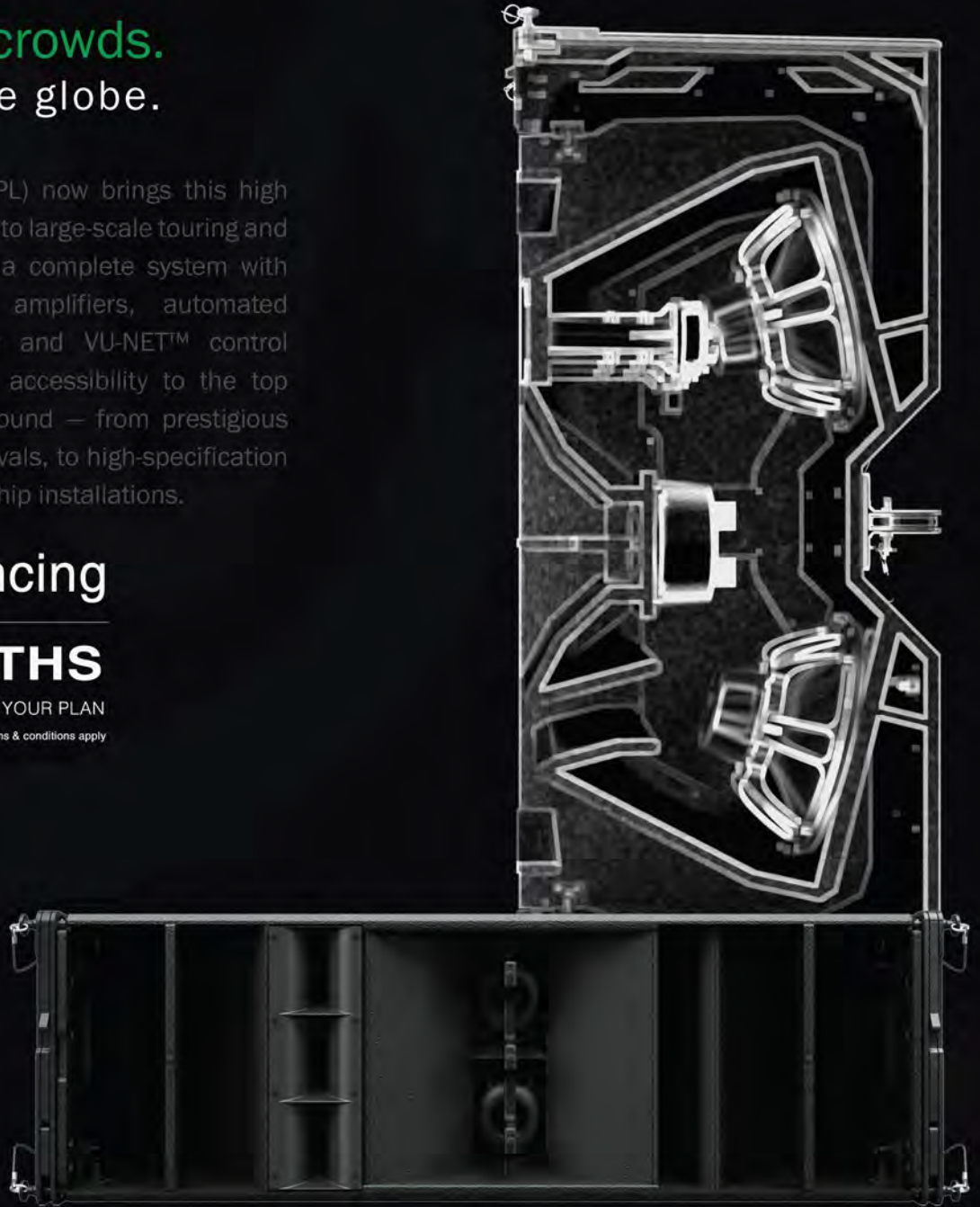
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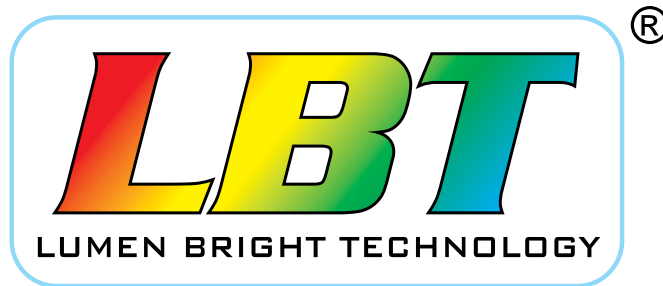


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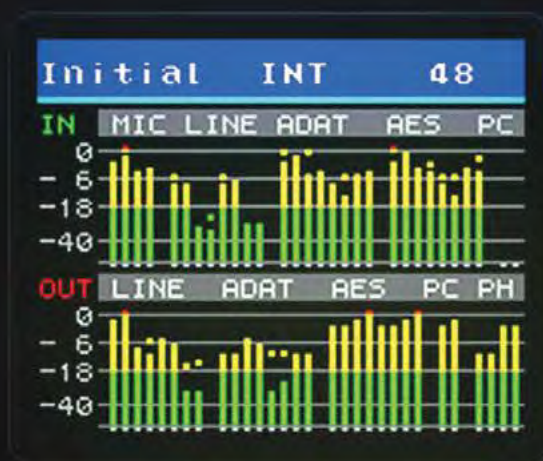
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## PALM's Fantastic run of Glory for 20 years gets a Virus Lockdown!

**P**ALM has always lived up to expectations and always delivered a fantastic expo, which has acted as a catalyst for growth of the industry in its glorious run of 20 consecutive, successive years. But as you have it, this glorious run has been unpredictably hit by a virus lockdown, bringing to naught all preparations. PALM was on the verge of completing two magnificent decades when the catastrophe struck. The utter disappointment of hosting a fantastic celebration on the exhibit floor of India's great pro sound and light industry is unfathomable.

This decision forced by the government, as per effective laws, for safety of exhibitors and visitors, has caused insurmountable losses for PALM expo organisers, as much as it has for the exhibitors, stakeholders and the industry as a whole. Considerable investments made by organisers on venue, marketing, media ads, admin, utilities, arrangements with fabricators, vendors etc., has been swallowed up by the COVID monster. Ongoing preparations and investments to bring back the much-awaited Outdoor Line Array is also washed away (pun intended) into oblivion.

Of course, there isn't an industry contributing to PALM AV-ICN expo which has not been impacted - hospitality, weddings, MICE - especially the Media, Event & Entertainment industry. This Event industry, which is all about people, huge gatherings and entertainment, has been decimated to say the least.



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An **EEMA** survey indicates that over 50% of the media companies have lost 90% of their business since March 2020. As per **FICCI** reports, the Indian Media and Entertainment sector, which was expected to cross US\$34 billion by 2022, at a CAGR of 10%, pre Covid-19, is now expected to reduce by 16% to Rs 1.3 lakh crore in the current financial year.

However, it's time we all stand together and cross the bridge to future anew. Recovery from the virus will require flexibility, with the industry needing to advance some existing trends while also creating new solutions and business models. As an industry, I believe we have shown time and again that we are spirited in difficult times.

PALM Expo's support to the market, industry trade and professionals is unstinting. We are all in the same boat and we are committed to remerge stronger than before. Our best response would be to stay together as an exigent unit.

### THE DIGITAL AVTAAR

Since normalcy seems to be in the distant future, the next couple of issues of **PT** too will have to be circulated as eMagazine. It has become increasingly evident that digital media has become a force to be reckoned with, and this shift has never been more valid than it is right now. Once we are ensured that dispatch of print magazines can be executed without any hiccups, we will resume the print edition, but until then **PT** will re-focus its energies on Digital pdf avtaar.

People across the world have re-aligned and altered their consumption behavior, so this Digital offering will present the biggest opportunities for companies wanting to maintain operations and be seen as active in the face of the new coronavirus situation.

We therefore encourage companies to optimize marketing efforts and utilize **PT** digital platforms to stay relevant and active in the months going forward.

### BACK TO THE STUDIOS

We have a feature-rich, combined *Mar-Apr and May-June* Digital mag with the main theme being "STUDIO".

We are so happy that we could get some meaningful insights from three-time National Award winner **Bishwadeep Chatterjee**. Read his interview on *pg.30*.

Also in this issue is an Interview with another award winning Indian Sound Engineer, reputed film mix engineer, **Sreejesh Nair** on *pg.51*.

We feature **Shankar Mahadevan's** new studio – *Lambodara*, designed by **Didier Weiss** and his team at *Sound Wizard* on *pg.46*. Unfortunately, we could not get pics of this brand new studio due to the lockdown but we will feature the same in **PT July-August eMagazine**.

On *pg.59* is a look at **Mrinal N's Stained Class Productions**, a new Bangalore based studio designed by **Rahul Samuel** of *LiveEnd*.

**PT** also touched base with indie Music Producers **Keshav Dhar, Jehangir Jehangir, Ayan De, Vivek Thomas** and **Rohan Ramanna** to find out more about their recording approaches and technology. Turn to *pg.56*.

In a six-part educational series, **Rahul Sharma** of *Menura Acoustic Labs* in collaboration with *Sound Wizard* will outline "Acoustic and Audio System Design for Small Rooms"; part 1 on *pg.68*.

While **Viraf Pocha** talks about how the virus has affected the events industry and steps to take to set the 'New Normal' on *pg.83*, **Kapil Thirwani** of *Munro Acoustics* outlines a sequence of steps for Studio Owners to follow post the lockdown on *pg.74*.

Also featured in this issue on *pg.48*, is the impressive Bose Professional install at the world's largest cricket stadium, Sardar Vallabhbhai Patel Stadium in Motera.

The next issue of **PT** is the Install special issue and we hope to bring to our readers details of more of such remarkable installs across various verticals.

Until then Cheers and Happy Reading!

*Smita Rai*  
Smita Rai – Content Anchor



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Control Room at Stained Class Productions, Bangalore

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“*Transparency is the main goal of any recording studio design, and **Shankar Mahadevan's Lambodara Studios** has multiple acoustic features that help it achieve this goal.*”

46



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## ADAMSON & SOUND.COM SUPPORT RECORD-BREAKING PERFORMANCE IN MUMBAI

It's a rare occasion when a live concert features more musicians on-stage than there are spectators in the audience, but such was the case for a Guinness World Record-breaking performance in Mumbai on January 24th, 2020.

To commemorate the premiere of Amazon Prime's highly-anticipated series The Forgotten Army, **Live 1000** – a group of 1,046 musicians – performed selections from the series' score for a crowd of about 200, supported by an Adamson S-Series

audio system from production technologies provider Sound.com.

"When we were first approached to take part in this very special event, it was clear that the sound system needed to be compact and discreet as to not impede the audience's sight-lines, considering the unique layout of the seating and stage," begins **Warren D'Souza**, the Founder and Managing Director of **Sound.com**. "We knew Adamson's tour-proven S-Series would give us the power, clarity, and headroom we needed, even in a such a

minimal set-up."

Sound.com deployed four identical stacks of three **Adamson S10 two-way**, full-range sub-compact cabinets over a single **S119 subwoofer** to cover the long but shallow seating area for a total of just 12 mains and four subs. As with the rest of the company's substantial inventory of Adamson products, the system was acquired via Sonotone, the manufacturer's exclusive Indian distributor.

"We needed a compact system that could deliver the required coverage and SPL for this show and the S-Series delivered on all fronts," comments Sound.com's **Mark Thomas**, who mixed FOH for the prestigious event. "The 110-degree dispersion of the S10 allowed us to cover the wide artificial amphitheater seating while delivering a truly impactful experience to the audience. The directionality of such a compact array was quite remarkable since we had minimal leakage of the PA onto the 100-plus microphones right behind." Six key bandleaders on stage had an Adamson **M15 multi-purpose loudspeaker** in front of them as a foldback wedge to complement their in-ear monitors with live imaging from the FOH mix. All of

the Adamson components were powered via Lab.gruppen **PLM 20K44 amplifiers**.

Rounding out the audio system were five DiGiCo consoles running on a fibre loop and a sizeable complement of wired and wireless microphones from Shure, Sennheiser, AKG, and Audix to capture the 650-plus vocalists, 250 acoustic guitarists, 80 drummers, 15 orchestral string performers, five brass players, one electric guitarist, one bassist, one keyboardist, and two sitar players.

The band performing its score as Live 1000 was comprised of musicians from all over India, as well as select guests from Kenya, Malaysia, and the U.A.E. An official adjudicator from Guinness World Records was on-hand to recognize the group as the new record-holder for "Largest Indian Cinematic Music Band."

"This was obviously a once-in-a-lifetime event and we were thrilled to be a part of it," comments D'souza in closing. "Adamson's S-Series once again lived up to its reputation, and we're very proud of how the system and our team performed in capturing the energy and power of Live 1000, which is now one for the record books!"



Adamson Live1000 at The Forgotten Army

## AHUJA AMPLIFIES MURARI BAPU'S MESSAGE OF UNIVERSAL PEACE

Morari Bapu is a renowned exponent of the Ram Charit Manas and has been reciting Ram Kathas for over fifty years throughout the world. The overall ethos of his Katha is universal peace and spreading the message of truth, love and compassion.

Bapu has traversed every major city

and pilgrimage in India and travelled to countries like Sri Lanka, Indonesia, South Africa and Kenya to the United Kingdom, United States, Brazil, Australia, Israel and Japan, drawing millions in audiences.

Although the team organizing these events have been using Ahuja products

for a long time, the association gained strength in 2018 when Ahuja distributor in Gujarat - **Hindustan Elektrotekniks** started working closely with them. Since then Ahuja equipment has been powering all of Murari Bapu's events.

After relentless discussions and simulations, the organising committee in

September 2019, selected Ahuja 500W compact single 12" line-array ALX-6000 to ensure even coverage of sound across the audience. 24 systematically placed line-arrays delivering crisp and clear sound are being used during the events to cover vast gathering, ranging from 2 to 10 thousand.

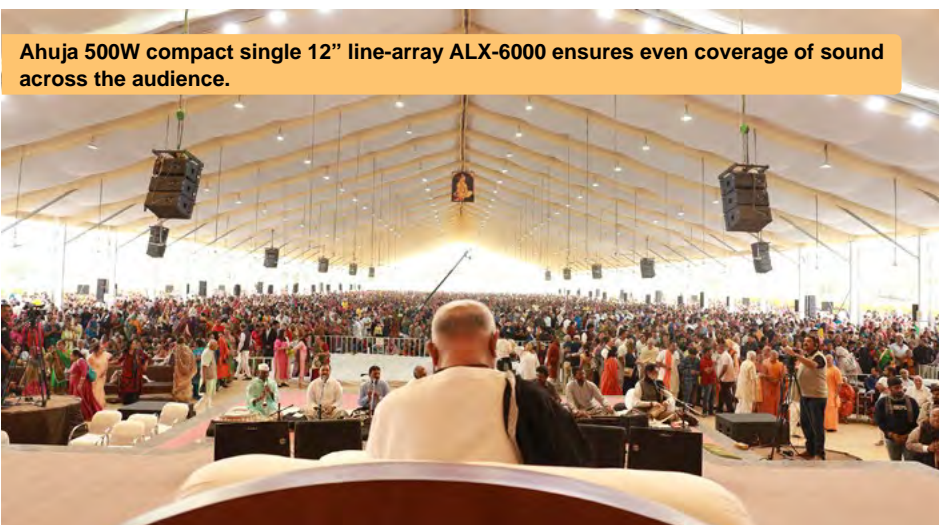
The organising committee is extremely satisfied with the audio quality. The best part

is that this exceptional sound quality is backed by technical support and prompt after sales service infrastructure at Hindustan Elektrotekniks and at Ahuja dealer in Bhavnagar - Alankar Radio. Thanks to the ready availability of original spares in Gujarat, the team there have full confidence that in unlikely event of any Ahuja equipment requiring service, there will be virtually minimal downtime.

### List of equipment being used in addition to ALX-6000:

- 24 pieces of 400W 2-Way Speaker System SPX 450
- 16 pieces of 700W 2-Way Speaker System SPX 810
- 20 pieces of Square Box (4 X 12") Speaker System SQX 850
- 16 pieces of 40W 2-Way Music Horn AMH 402T

Driven by Rugged & Reliable Ahuja booster amplifiers (BTZ 10000, BTZ 7000) and power amplifiers (LXA 3200, LXA 1400)



Ahuja 500W compact single 12" line-array ALX-6000 ensures even coverage of sound across the audience.



## D&B APPOINTS ANAND NARAYANAN AS APAC TERRITORY MANAGER AND PRESIDENT

d&b audiotechnik has appointed Anand Narayanan to serve as Territory Manager APAC and President, d&b audiotechnik Asia Pacific Pte. Ltd.

Narayanan will be responsible for d&b's business in Asia Pacific, which includes strategic business development, sales & services, expansion of d&b's brand positioning, and general management. Narayanan succeeds Michael Case, who is

taking another strategic role within the d&b group.

Narayanan brings a strong background in operations and technology, coming to d&b from Danfoss Industries, where he was the Asia Pacific Regional Director. Narayanan also previously served as the Regional Commercial Leader of Projects for Korea and Japan at General Electric. Narayanan is an ambitious leader with an affinity for technology, engineered products, and

music.

Narayanan's appointment underscores d&b's commitment to drive new growth in the APAC territories and successfully strengthen its regional partner network. He brings a depth of knowledge and a track record of successfully driving strategy, sales and marketing and business development in his previous roles.



Anand Narayanan, d&b audiotechnik Asia Pacific Pte. Ltd.

## MEYER SOUND INTRODUCES ULTR A-X20 LOUDSPEAKER AND USW-112P SUBWOOFER

At ISE 2020 in Amsterdam, Meyer Sound introduced two new compact, self-powered loudspeakers to provide versatility for covering a wide range of installed and portable applications.

### ULTRA-X20 Compact Point Source Loudspeaker

The new ULTRA-X20 compact point

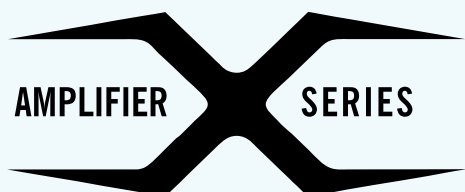
source loudspeaker is a junior-sized version of the ULTRA-X40 loudspeaker. It offers the same design principles and technologies but with smaller drivers in a lighter and more compact package.

The ULTRA-X20 incorporates two 5" cone drivers, one 2" diaphragm compression driver, and a rotatable

110°x 50° horn in a coaxial configuration. Power comes from a three-channel Class D amplifier with sophisticated DSP, with everything fitted inside a compact cabinet that measures 7.5" / 19.5 cm wide by 19.04" / 48.4 cm high by 8.6" / 21.8 cm deep and weighs only 26 pounds / 11.8 kg.

"The ULTRA-X20 is a breakthrough in power-to-size ratio," says Pablo Espinosa, Meyer Sound's Vice President, and Chief Loudspeaker Designer. "It is 30 percent smaller and 7 percent lighter than our UPJunior loudspeaker yet it

(Continued on page 69)



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# PODCASTING AND LIVE RECORDING



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**HMD660**



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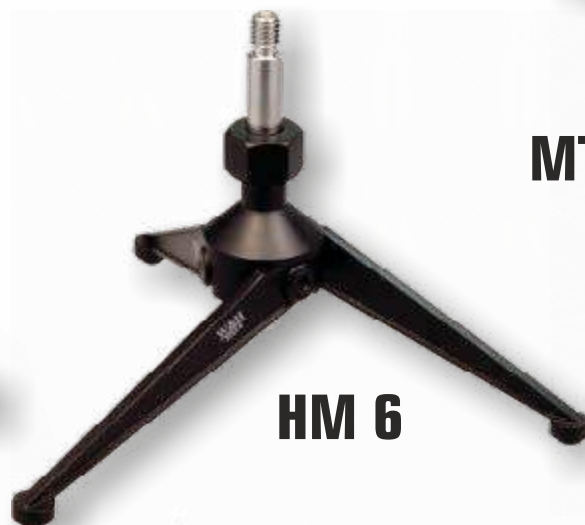
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## **MX MDR TECHNOLOGIES LTD.**



[mx-mdr@mdrelectronics.com](mailto:mx-mdr@mdrelectronics.com)



[www.mdrelectronics.com](http://www.mdrelectronics.com)



## HI-TECH AUDIO TAKES IT LIVE WITH DIGICO SD10

In recent months **Hi-Tech Audio** has supplied the **DiGiCo SD10** not only for live events but also to companies who were looking to expand their inventory list.

### Universal Sound and Light rocks Kolkata with RCF's TTL55-A and DiGiCo SD10

Among all the rental companies in Kolkata, one name steals the spotlight – Universal Sound and Light

Pvt. Ltd., the authorized distributor of both RCF and DiGiCo provided the technical support for the show.

Aside from the speakers, USL's Director Amitav Biswas confirmed that the **RCF TTL -55** purchase was driven by the relationship the company has traditionally enjoyed with the Italian manufacturer and its India distributor Hi-Tech Audio Systems. Hi-Tech Audio installed 10 pieces of the three-way

TTL 55-A (total 20 nos.) active line source on each side in conjunction with 10 pieces of TTS 56-A subs.

"RCF TTL 55-A is designed to be easily scalable for few modules for medium and small venues to full size arrays for very large open air spaces. Throughout the year we provide audio support to dynamic events and RCF TTL 55-A is the premium upgrade for our inventory. With the TTL 55-A, we have escalated our audio support and services," says Amitava Biswas, Managing Director, Universal Sound

and Light. pert from Hi-Tech Audio Systems who is always providing us endless support and solutions in regards to DiGiCo as well RCF did an excellent job post and during the show. You can always count on them for show support."

The entire TTL 55-A system along with TTS 56-A subwoofers was controlled by the latest **RCF RDNet 3.1**.

**Ganesh Thapliyal**, System Application Engineer from Hi-Tech Audio Systems led USL's technical team to rig and align the system for the show. "RCF RDNet 3.1 is the latest marvel from RCF. The major update of the RDNet (Networked Management System) sees much improvement such as direct control of the on-board high-pass filter, a new Shape Designer and a Bass Shaper function. RDNet 3.1 not only controls loudspeakers, it can also be paired with digital matrixes or amplifiers".

**Rajan Gupta**, Managing Director of Hi-Tech Audio Systems stated, "Universal Sound and Light commitment towards quality and efficiency

supplied by DiGiCo's authorized India Distributor, Hi-Tech Audio Systems of New Delhi.

"The entire team of Audio Waves Light & Sound was very excited to add DiGiCo SD10 to our inventory. We do events at various part of North India and our clientele list is always growing. To go with DiGiCo SD10 is the right decision as sound engineers often put in their tech ride. My personal favourite, the smart key macros of DiGiCo SD10 that makes life easy for the user", says Happy Prabhjot.

With the DiGiCo SD10, Audio Waves Light & Sound has provided remarkable audio support for prestigious live artists like Harshdeep Kaur, Noorwan Sisters, Siddharth Mahadevan, Jubin Naitiyal and few others to name some. The artists' engineers really prefer the flexibility and complexity of SD10 that gives so many options for routing, layout and processing.

**Nirdosh Aggarwal**, Director Sales



RCF TTL-55A for Vishal-Shekhar show, Kolkata

owned by **Amitava Biswas** a veteran in the audio, video and lighting industry. Recently USL was associated with the sensational Bollywood music production, singer-song-writer duo Vishal-Shekhar at Imperial Blue Superhit Night at Kolkata. For this show, Amitava and his team installed RCF's stellar **line-array series TTL 55-A** along with **TTS 56-A subwoofers**. The entire show was mixed on DiGiCo SD10. Hi-Tech Audio Systems

and Light.

**Tosief Shaikh**, FOH engineer for Vishal-Shekhar was impressed with the power and precision of the RCF system used at the show. "I must say that RCF TTL-55 speakers are hidden beasts. They delivered super powerful, tight clean sound and did justice with my mix. Powerful system is something which we always look for when it comes to the dynamic duo Vishal-Shekhar's live shows." Tosief adds on, "Technical ex-



Tanay Gajjar working on the new DiGiCo SD10 at Shaan live concert

is tenacious. They are determined to provide top line audio inventories to artists and audio engineers. The TTL-55 and TTS 56 set-up will surely strengthen USL's technical support and skills. This is the outset of a glorious era for Universal Sound and Light with RCF."

### Audio Waves expands inventory with DiGiCo SD10

**Audio Waves Light & Sound** is one of the leading event management and rental company based in Panchkula. From live shows to corporate events, grand weddings to small events, the company provides complete audio, video and lighting support to its long list of clients.

Recently **Happy Prabhjot**, owner of Audio Waves Light & Sound took his company to the next level by purchasing the **DiGiCo SD10**. The console was

of Hi-Tech Audio Systems shares, "DiGiCo SD-series is a game changer globally and in India too. We are able to provide excellent technical support on DiGiCo to empower our clients. Plus our after-sales training on DiGiCo have been appreciated by Audio Waves Light & Sound."

### MasterSound hits Masterstroke with DiGiCo SD10

The audio rental industry in the country has become more dynamic in its inventories and services.

Some of the pioneer Indian rental companies have played an important role to mould the future of today's audio rental market. **MasterSound** is one of the companies from the 1950's who are known to be the



Ganesh Thapliyal (L) and Toseif Shaikh (R) with Digico SD10

(Continued on page 15)



## JBL PROFESSIONAL VTX V SERIES LOUDSPEAKERS CONTINUE TO DRIVE ADOPTION IN THE INDIAN LIVE SOUND MARKET

*Rental companies, FOH engineers and tour production crews throughout India swear by the time-tested VTX V Series to deliver great sound for productions of all sizes*

Rental companies, FOH engineers and tour production crews throughout India swear by the time-tested **VTX V Series** to deliver great sound for productions of all sizes

Live sound professionals across India continue to rely on **JBL Professional VTX V Series** line array loudspeakers, more than eight years after their release.

A product of decades of experience in loudspeaker design, the JBL

VTX V Series introduced several innovative technologies that have cemented its place on stages worldwide. Patented Differential Drive transducers and D2 compression drivers deliver pure sound with high output, while the Radiation Boundary Integrator (RBI) waveguide ensures precision coverage. The S.A.F.E. suspension system streamlines deployment and ensures secure rigging.

"Of all the achievements JBL has made over the years, the VTX V Series

stands tall as a milestone in the practical application of creative engineering because of their high levels of performance, system integration and user-friendliness," said **Aditya Todi**, Senior Director of Sales and Marketing, Harman Professional Solutions, India and SAARC. "The VTX V20 features a high power density three-way system complemented by a suspension system that provides efficient transport, fast setup and precise configuration. It has always amazed touring professionals."

From their astounding power and sound quality to their quick and easy deployment, live sound professionals from all over India have great things to say about VTX V Series loudspeakers.

"We loved the JBL Professional VTX V25," said **Arvind Singh** of Devil Truss, one of the leading suppliers of trussing systems in India. "It has helped us deliver the finest sound quality and awesome coverage for high-profile events in big spaces, which is what one would expect from a legendary brand like JBL Professional."

"The VTX V Series is amazing because of its waveguide and speaker design,"

said **Gaurav Soni** of Indore-based **Durgesh Sound**. "The VTX V25 in particular, with its 15-inch driver, has helped us serve many large-format shows. We also love the V-20 because of its size, weight and tonal

quality. We've been doing small and medium-format shows more often, and this product is a great fit for meeting client budget and expectations. Moreover, the product comes highly recommended from many sound engineers and artists, which has ultimately helped us in getting more deals. I appreciate the services offered by the HARMAN Professional Solutions team."

"As vendors, we want to provide the best for our clients' touring requirements, and what's better than legendary JBL sound?" said **Amit Sanghavi** of **Echoes India**, a rental company providing a complete range of audio and visual equipment for all kinds of events. "We added the JBL Professional VTX V20 to our inventory because it provides efficient transport, quick setup and precise configuration. It delivers linear, transparent sound at high output levels, which is amazing for its size."

"The JBL professional VTX V20 is quite compact and offers clear, loud sound," said **Arijit Bose** of **The Sound**, a sound rental company based in Kolkata that works with major Bollywood artists and their teams. "It's almost like a plug-and-play system, making it easy to setup at the venue. So far, all of our customers have been content using the system. Working with HARMAN Professional Solutions was great, as always. A HARMAN engineer was available to guide us through setup, and the team was always available for help."



**Arijit Bose of The Sound with the JBL VTX V Series**



**Arvind Singh and team Devil Truss with JBL VTX V Series**

### HI-TECH AUDIO TAKES IT LIVE... (Continued from page 14)

pacesetter in North India. Recently MasterSound achieved another milestone by purchasing the DiGiCo SD10 from the British manufacturer's authorized India distributor- Hi-Tech Audio Systems.

**Tarandeep Singh**, Director of MasterSound shares, "Gurnam Singh, founder of MasterSound was a visionary with the inception of MasterSound

in 1956. He never compromised on the quality of the audio system and always aimed to provide the best audio solution to his clients. From India's first Prime Minister Jawaharlal Nehru to George Harrison to sitar maestro Ravi Shankar to Lata Mangeshkar, MasterSound was privileged to work with some global iconic names. Being the third generation torch-bearer, I have made sure to

take ahead MasterSound's legacy with the same promise as my father and my grandfather's." Further Tarandeep continues, "DiGiCo SD10 is in high-demand among mixing engineers and artists. It was time for us to upgrade our inventory and the first choice was DiGiCo. I was confident with Hi-Tech Audio Systems support on DiGiCo and thus opted for DiGiCo SD10. The first show we did with the new console was for Bollywood's popular singer Shaan in Lucknow. **Tanay**

**Gajjar**, who was the FOH engineer, preferred DiGiCo and we were happy to provide him the SD10."

"MasterSound's DiGiCo SD10 curtain raiser show for Shaan went smooth. Tanay Gajjar who is India's top mixing engineer has been travelling with Shaan for long now. He is an avid user of DiGiCo and loves the work surface", shares Hi-Tech Audio Systems application engineer for DiGiCo - **Vanshaj Sharma**.



## ELECTRO-VOICE LAUNCHES FIRST POWERED FLOOR MONITOR

The **PXM-12MP** marks **Electro-Voice's** debut in the powered stage monitor market. Created for live performances from solo entertainers, bands, mobile DJs and rental companies, PXM-12MP is a powerful, rugged, and flexible loudspeaker designed for daily use. The acoustically optimized, high-output, two-way stage wedge features coaxially aligned 12" LF and 1.75" HF transducers. Its small footprint and light weight of 13.5 kg (29.8 lb) makes it a portable solution suited to live performances on all stages, particularly where floor space is limited.

The acoustically optimized 55° monitor floor angle enables an artist to stand as close or as far away from the system as necessary without sacrificing audio intelligibility. The wide 90° horizontal angle also gives performers

the freedom to move across the stage, rather than being constrained to just a small area.

While the PXM-12MP compliments any sound system, it also expands EV's portable speaker portfolio. It equally performs well as a fill, delay, or mounted on a pole working as a sound system for short-throw applications; subwoofers can also be connected whenever extra bass is needed.

The built-in two-channel Class-D 700 W amplifier, developed by Dynacord, provides plenty of power, precision sound and enough headroom to satisfy the most demanding monitoring requirements, reaching a maximum sound pressure level of 129dB.

EV's intuitive QuickSmart DSP features a backlit LCD panel and a push-button encoder, providing signal

processing with IIR/FIR settings for optimized audio performance. The integrated digital three-band EQ features different factory presets, as well as five individual user presets. The GUITARCAB setting allows connecting a guitar directly to the PXM-12MP via a DI box.

The recessed connection panel features two XLR/TRS combo mic/line inputs, an individual phantom power option, a stereo RCA AUX input for playback music sources, and an XLR THRU input when used as part of a distributed sound system. An XLR MIXOUT output allows the cabinet to act as a basic three-channel mixer that can send the mix to another loudspeaker. PXM12-



MP's integrated cable management reduces stage clutter and prevents tripping over cables. The stage monitor is housed in a durable, 15 mm plywood enclosure with rugged EV-Coat and is furnished with a powder-coated steel grille to guarantee roadworthiness.

## EXCELLENT RESPONSE FOR DYNATECH'S DIGI24 DIGITAL MIXER SEMINAR

The **Dynatech Digi24 digital mixer** demo and training held on 28th & 29th February received immense response with over 50 people attending the session in total. **Sonotone Electronics** hosted the seminar along with its dealer **Digitrons** in Nagpur and **Liberty Electronics** in Chandrapur. **Dr. Rajesh Khade** who gave a demo of the Digi24 and shared his knowledge with the attendees conducted it.

"The response was really overwhelming," commented Dr. Rajesh Khade. "It was a brilliant group of



people, all with a will to learn something new and the want to upgrade themselves. I had a fun time teaching as everyone showed keen interest and actively accepted the Digi24. I would like to thank **Urjesh Gupta** of Liberty Electronics and **Deepak Gupta** of Digitrons for their hospitality."

**Urjesh Gupta** of Liberty Electronics

said, "It was our pleasure to host the Dynatech Digi24 training here. The session was very beneficial and Dr. Khade was excellent in conveying all the information about the Digi24 mixing console clearly. I am grateful to **Karan Nagpal** and the team at Sonotone for their help in organizing the event."



Dynatech Digi24 Digital Mixer Seminar

## AMATE AUDIO RELEASES LOUDSPEAKER MANAGEMENT PROCESSOR PLATFORM

The **Amate Audio LMS206** is a dual-input/six-output loudspeaker management processor platform using a 64-bit DSP architecture. Fully configurable, each input is assignable

to any output, with two crossovers with selectable Butterworth, Linkwitz-Riley and Bessel filtering and independent compressor/limiter settings available

on each output.

With four analog inputs, a two-channel AES/EBU digital input and eight analog outputs, all on balanced XLRs,

the 1U 19-inch rackmount LMS608 offers advanced system configuration capa-

bilities. Higher performing 24-bit ADDA converters on the units I/Os gives the LMS608 higher sound quality than its less powerful sibling.

The LMS608 includes both 80 user-programmable and password-protectable memory presets, and 20 powerful factory presets.. Ethernet or USB (Windows and macOS) remote operation is available with Amate Audio DSPLink software.







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## OUTLINE LAUNCHES TWO NEW PRODUCTS

Outline has announced the launch of two new ground-breaking products – the **STADIA 28** - Constant Curvature Array and the **L3000** - freestanding, high-powered multi-mode power amplifier.

### STADIA 28 - Constant Curvature Array

STADIA 28 is a new addition to the very successful STADIA family of loudspeaker systems designed for the largest sports venues and arenas.

The new module is a medium-throw, Constant Curvature Array enclosure weighing just 21Kg yet capable of a peak SPL of 139dB. It features the same world-

class weather protection and premium audio quality as the rest of the range but is designed specifically for smaller venues, providing a very cost-effective solution for locations that don't need the power of its larger stablemates.

Its usefulness is extended by its ability to be arrayed in either vertical



Outline L3000 multi-purpose amplifier

### Outline STADIA 28 - Constant Curvature Array

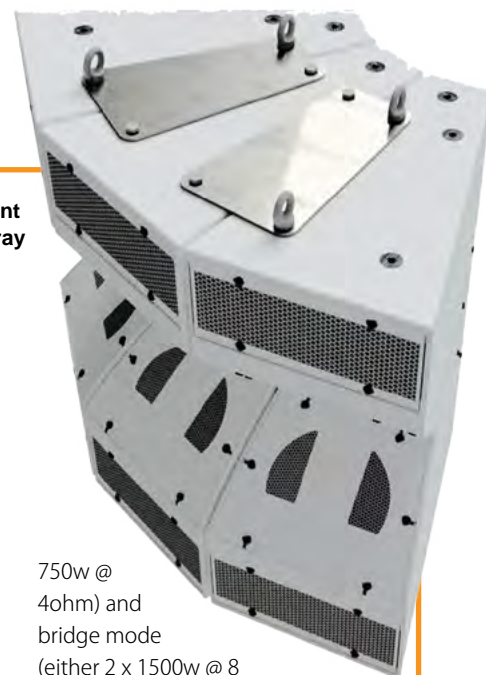
or horizontal orientation, with just six cabinets providing a full 150-degree coverage in both deployments.

### L3000 - freestanding, high-powered multi-mode power amplifier

Also making its debut at ISE 2020 will be the L3000 multi-purpose amplifier. Designed principally for applications where it is not possible or practical to use 19" racks, L3000 is a freestanding, high-powered multi-mode power amplifier presented in a durable wood finish as Outline's touring loudspeakers. If rack mounting is required however, two L3000s can be mounted using a dedicated Outline kit.

The L3000's Class D design includes two inputs and four outputs, able to operate in single channel mode (4 x

750w @ 4ohm) and bridge mode (either 2 x 1500w @ 8 ohms or 1 x 1500w @ 8 ohms and 2 x 750w at 4 ohms). Onboard DSP provides a range of essential amplifier controls and its universal regulated switch mode power supply allows it to function on various input voltages and mains cycles globally.



## API INTRODUCES API 2500+

Since its debut in 2002, the **API 2500** has become the 'go to' Stereo Bus Compressor for mixing engineers worldwide. Offering an exceptionally wide and true stereo image, the 2500 is famous for its signature tone and analog warmth. The 2500 enhances mixes across virtually all musical genres, from classical and jazz to pop and rock.

The 2500 has found a home in the live market as well, with a large percentage of tours carrying one or more 2500 Stereo Bus Compressors for main, subgroup and monitor mix buses. With the standard for live sound now being

digital front of house and monitor consoles, the 2500 has been proven invaluable in providing punch, fat bottom end and warmth.

API has now announced the 2500+. While retaining all the functional and sonic characteristics of the original 2500, the 2500+ adds several additional design parameters that have been carefully incorporated into the original unit. The same API sound with an enhanced feature set including:

**Expanded Threshold control**  
of +20db to -20db (from the original



+10db to -20db)

### New 'Blend/Mix' function

Featured in the limited production 50th Anniversary Edition, the Blend/Mix function offers both cross fader and parallel mix control of the compressed and uncompressed signals.

"Over the past 18 years, many improvements have been made to the 2500, some small and some larger,"

API's Director of Engineering **Todd Humora** noted. "The 2500+ is an evolution of the 2500, with the addition of a few key features that our users have had on their wish lists for quite some time! We're very grateful for the ongoing success of the 2500 and it's our hope that the new 2500+ will allow for even greater creativity among its users in the studio, and in the live market."

## NEXT-PROAUDIO INTRODUCES NEW N-RAK

**NEXT-proaudio** has introduced two new models in the N-RAK family – **N-RAK 6** and **N-RAK 12** for the company's entire product range. The new N-RAK touring rack offers an advanced rack solution covering signal and power distribution in a plug-and-play touring package. Both the N-RAKs are equipped with Powersoft T604, featuring Dante audio networking functionality.

The new N-RAKs were created as a universal platform developed to facilitate cross-rental between NEXT-proaudio's users worldwide and to ensure compatibility with the cabling standard of the systems.

The N-RAK series also include N-RAK 20, N-RAK 40, and N-RAK 80.

The new N-RAK 6 and 12 have Dante, AES3, and Analog inputs for multiple connections, making the setup process greatly simplified and much more efficient than the former LA Rack. With the Powersoft amplifiers already built-in and no assembly required, an easy-to-configure, all-in-one amplifier solution eliminates the process of building amp racks.

The new fully equipped N-RAK 6 and 12 module comprises a compact 4U

Customized Rack with 2 Powersoft T604 (N-RAK12) or 1 Powersoft T604 (N-RAK6); 2U Audio Distribution Panel in the front; and 2U Power Distribution

Panel in the back.

The N-RAK features Armonia software for convenient, simplified, and standard control. The complete digital audio signal management system based on ARM Cortex A-8 processor and TI C6000 DSP platform heralds new and innovative level of signal processing, providing non-boolean routing and mixing, multi-stage equalization with raised-cosine, IIR and FIR filters, delay up to 4 s in input processing and 200 ms for time alignment, gain and polarity adjustment, crossover, peak limiters, TruePower limiters and Active DampingControl.





## MEYER SOUND PROMOTES MCMAHON AND REALIGNS SALES STRUCTURE

Meyer Sound has promoted key executives and announced a strategic realignment of sales and technical services. The changes were prompted by continuing sales growth globally in all market verticals.

**John McMahon** has been promoted to Senior Vice President of Sales and Marketing. In his expanded role, McMahon will assume responsibility for global sales, with all U.S. regional and international sales managers reporting directly to him. McMahon also will oversee all of the company's "outward facing" operations, including marketing, technical services and education/training.

"By placing high-level direction of all our customer-related responsibilities in John McMahon's extraordinarily capable hands we will ensure a close coordination of these interdependent activities," says Meyer Sound Executive Vice President **Helen Meyer**. "Customer relationships are at the heart of how we run our business, and this move will further strengthen the links between our sales, marketing, technical services

and education teams."

Meyer Sound has also expanded the role of its international office and realigned its international sales structure.

Meyer Sound Germany, under the direction of **Wolfgang Leute**, has expanded its role to support dealer networks in the United Kingdom, Scandinavia and parts of Eastern Europe. Meyer Sound's distributors in Russia, the Baltics, Romania and Bulgaria will receive additional support under Leute's direction.

**Jocelyn Moras** will assume responsibility of managing the sales teams throughout Latin America, including Central and South America and the Caribbean. Meyer Sound Mexico returns to being the sole and exclusive distributor for Mexico, under Moras' direction from the Mexico City office.

Sales throughout Asia have been re-focused under the direction of Director of International Sales **Scott Gledhill**. Gledhill will continue to manage Meyer



**John McMahon, Meyer Sound**

Sound's network of European Distributors in addition to leading Asian sales activities with support from the new Meyer Sound Asia office recently established in Singapore.

Technical services responsibilities have been realigned for more internal efficiencies and improved customer communications with Technical Services Manager, International **Dennis Tholema** heading a global team from Meyer Sound Europe offices in Germany.

"As an independent and privately owned business, we have the freedom and flexibility to make structural changes quickly in response to demands," states McMahon. "Although we are introducing new internal structures, most of our customers will be working with the same great Meyer Sound employees as before, and they will continue to benefit from the same industry-leading level of support."

President and CEO **John Meyer** will continue leadership of the R&D and new product development teams while Executive Vice President Helen Meyer will direct overall company operations.

## SYSTEMATIC INC. PUMPS UP CORPORATE ANNUAL DAY FUNCTION WITH D&B KSL

Pro-audio rental company **Systematic Inc.** puts its new **d&b audiotechnik line array** to good use, deploying its KSL system to support a corporate annual day function program. Based in Bangalore, Systematic Inc. is a full-service sound and light reinforcement company with top of the line equipment and professionally trained crew that has worked on some of the biggest productions in the country.

On 29th November 2019, **Vinod Bangera** - the owner and lead engineer of Systematic Inc. along with his team of well-trained professionals in pro-audio, provided support to the concert that was held at the KTPO Trade Centre, Bangalore, India. Vinod the sole proprietor of the company has been serving the industry as an Audio Engineer since 1997- 98. It was Vinod Bangera as a brand that would talk for his company. However, with the changing market characteristics and strict

regulations, he decided that the need of the hour was to get a brand that would talk for Systematic Inc. Thus, he decided to opt for the top-notch d&b audiotechnik brand. They reinforced their inventory with a truly comprehensive d&b KSL rig that included **12 units of the KSL8** medium to large format 3-way line array loudspeakers along with **4 units of the KS12 line arrays**, **8 units of the SL-GSUB** and a total of **8 units of the D80 amplifiers** to power the loudspeakers

and subs. The purchase was facilitated through **Ansata**.

Speaking about the concert and the gear Vinod affirms, "Our first gig with world-class d&b audiotechnik line array with these incredible sounding boxes. We had a blast with the new gear. Sounded terrific and must say words fall short to express the power & the quality of this KSL boxes. The system proved to be a big hit. Honestly the best sounding boxes I have heard till date. Being

partnered with d&b was a dream and now I am living my dreams with the SL series."

Sharing his experience with Ansata, he said, "Thanks to Ansata, without your support, this wouldn't be possible. Lot of respect and thank you **Leslie Lean** for the continued support and Neil Lean for all the training and tuning the system. We are so proud to be associated with Ansata for more than a decade now

and you guys are the best in your service in the entire country for the products you deal with. Thanks a ton for your continued support."

"It is heartening and highly appreciated that industry professionals like Vinod Bangera and his team have partnered with d&b audiotechnik - a brand that is recognized the world over for its unbeatable quality products - for the investment of their new KSL-series system. Our best wishes are with Vinod and his entire team," concluded Leslie Lean, Director, Ansata



**Vinod Bangera with d&b audiotechnik line array**



## NAMASTE TRUMP WITH SNL PRO

Donald Trump's two-day visit to India got off to a celebratory start as the 125,000-strong crowd who had gathered at the world's biggest cricket stadium welcomed the US President on his first visit to India alongside the Indian Prime Minister. The event, organized in Ahmedabad in Gujarat, was the pinnacle of Trump's visit to India and a platform for the two leaders to show off their enthusiastically friendly relationship. Before taking to the stage, Trump rally favorites Madman Across the Water by Elton John and Macho Man by the Village People boomed out across the giant stadium.

Owing to its sheer scale and stadium complexity, the event demanded a truly comprehensive and world class live sound reinforcement architecture, the likes of which was never before seen in the country. Recognizing this critical need, **Wizcraft** trusted this

responsibility upon the shoulders of **Sound & Light Professionals (SNL Pro)**. Artists like Kailash Kher, Sairam Dave, Kirtidan Gadhvi, Parthiv Gohil, Kinjal Dave relied on world class backline tech provided by SNL Pro to deliver their signature sound. Sound & Light Professionals (SNL Pro) deployed, designed and implemented the audio system with products like **L-Acoustics, D.A.S., Shure, Yamaha, Sennheiser** and



SNL Pro deploys L-Acoustics, D.A.S., Shure, Yamaha, and Sennheiser for Namaste Trump Event



many more.

"The organizers were commendably meticulous in demanding a pure L-Acoustics sound signature to be maintained across the expanse of the concert, and it was up to us to ensure that a truly uniform audio experience was delivered to the crowd by precisely tuning and time aligning the delays with the FOH. The fidelity of K1/K2 is simply incredible; it brings a very studio-esque listening experience to the audience, and places everything right in front of their faces. With the proper deployment, it's a system engineer's dream as it just sounds the same from front to back," said **Manish Mavani**, di-

rector of SNL Pro. "L-Acoustics is just a known constant for me," he adds.

Many difficulties were faced while setting up the gear. One of the reasons being size of the stadium and the complications that comes with it. As this event was organized for the world's most powerful man, the extensive security protocols had to be followed which included opening and checking every piece of equipment which would be placed on or around the stage and the thorough vetting process of each member of the crew involved owing to delays and constant changes due to these security measures.

## AUDIO-TECHNICA EXPANDS 3000 SERIES WIRELESS WITH NETWORK CONTROL AND MONITORING OPTION

**Audio-Technica** announces the expansion of its acclaimed **3000 Series** Frequency-agile True Diversity UHF Wireless Systems with the addition of a network port, which now allows network control and monitoring along with the same easy setup, versatile operation and detailed high-fidelity sound as standard 3000 Series components.

Expanding on the functionality of the standard 3000 Series Wireless System, the new network control and monitoring option is unique for a wireless system, as it allows the 3000 Series to be compatible with A-T's proprietary Wireless Manager software, a Mac OS/Windows application for remote configuration, control, monitoring, spectrum management and frequency coordination of compatible Audio-Technica devices in sound reinforcement or installed sound appli-



cations. The software package offers a broad range of control and management functions of networked receivers, grouped into three tabs: Device List, which auto-discovers connected compatible A-T hardware and allows users to populate a device list of Audio-Technica and other manufacturer's

wireless systems; Frequency Coordination, which allows real time spectrum scanning via the 3000 Series Wireless with Network option or other A-T connected network enabled receivers, or the option of using the pre-loaded television channel database for off-site planning; and Monitor, which

allows live monitoring of connected systems with the option of filtering the displayed devices by assigned tag groups. Parameters monitored include AF, RF, battery, transmit power and more.

Audio-Technica's 3000 Series wireless systems give users the power and flexibility to operate within the congested UHF spectrum. With a class-leading 60 MHz tuning range, 3000 Series systems are available in two frequency bands – DE2 (470–530 MHz) and EE1 (530–590 MHz). Frequencies can be easily scanned and selected on the receiver and then synced with the transmitter via IR sync functionality. The 3000 Series lets users set a backup frequency that can be swapped by pressing the transmitter's multifunction button in the event of unexpected interference.



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## SUPER SUCCESS FOR SNL PRO AT VH1 SUPERSONIC 2020

**Vh1 Supersonic**- India's premier music festival, boasting multi-genre artists from hip-hop, indie rock and electronic music takes place every year in February. With unparalleled productions and mesmerizing stage designs, the music festival is the mecca for festivalgoers. The entire production for VH1 Supersonic music festival this year was taken care by India's leading rental company- **SNL Pro**.

SNL Pro were privileged to undertake complete event technical of audio, trussing, rigging and special effects for all 4 stages (Main stage, Live Stage, Change over stage and Techno stage) at the festival.

For such colossal music festival, SNL Pro deployed a combination of **L-Acoustics K1, K2, SB28, Kara, SB1, Arcs** and **X15** for Main stage, Live

Stage and Techno Stage. For both Main Stage and Live Stage, DiGiCo SD10 was used at FOH. Further for the very first time, SNL Pro used the **RCF TTL33-A line array** with **Sub9006** for Techno Stage at Supersonic. SNL Pro purchased the

L-Acoustics, DiGiCo and RCF products from Hi-Tech Audio Systems Pvt. Ltd., India's Authorized Distributor for all the three brands.

Vh1 Supersonic 2020 broke all barriers of music festivals in India. SNL

Pro was responsible to provide stellar audio and SFX support for this year's rocking headlining acts like Diplo, Machine Gun Kelly, Illenium, Divine, Fever 333 and Prateek Kuhad among others. SNL Pro has created a benchmark for Supersonic through their premium inventory, sheer experience, and dedication.

**Rajan Gupta**, Managing Director of Hi-Tech Audio Systems shares his thoughts about SNL Pro, "We are privilege to be associated with Manish Mavani and his team. They have done some amazing work and carved their name at the top. Today in the rental market of India, SNL Pro owns the apex series of L-Acoustics, DiGiCo and RCF. They have become the trailblazer of this industry and inspired others too with their expansive portfolio."



SNL Pro uses L-Acoustics, DiGiCo and RCF at Vh1 Supersonic

## AUDIOCENTER K-LA 212 DSP IS THE PREFERRED CHOICE FOR SR ELECTRICALS

The super compact and super light-weight **AUDIOCENTER K-LA 212 DSP** is an active DSP-controlled line array speaker whose performance value can be compared to that of a three-way system from any of the world's leading ultra-premium pro audio brands. The K-LA 212 DSP sports customized Beyma drivers with high-performance PTV HF horn that assures consistent response across the horizontal plane coverage, along with a unique dual phase-plug design that ensures precise dispersion. Recently **SR Electricals**, one of the key players in the audio reinforcement solutions market in Odisha, operating out of Kendrapara district, have proudly added to their inventory a total of **4 units** of the world-class **AUDIOCENTER K-LA 212 DSP line array** elements along with **2 units** of the matching pair high-performance **K-LA218 DSP subwoofers**, with the sale facilitated by Bhuvaneswar based Om Sai Sound – an authorized dealer of Audiocenter products in the region.

Mr. **Litu** of Om Sai Sound says, "Sunil and his team at SR Electricals, desired a new system that would assure and consistently deliver great sound performance for every event with added benefits like ease of use, ease of logistics, efficiency – all of which are facets that AUDIOCENTER's K-LA DSP system successfully delivers. And we congratulate SR Electricals on their

latest investment!"

Talking about SR Electricals' decision to purchase the AUDIOCENTER K-LA 212 DSP rig, Mr. Sunil, the company's Director stated, "We were blown away with the performance value of the Audiocenter K-LA 212 DSP and K-LA 218 DSP. The system as a whole is not just powerful, and pleasing to the ear, but is also extremely easy to set up and use, and efficient and reliable. Basically, it is everything that a rental compa-

### ABOUT AUDIOCENTER K-LA 212 DSP & K-LA 218 DSP SUB

The game-changing K-LA212 DSP from Audiocenter features a novel phase corrector, which shifts the center of the speakers closer to the center of the box and ensures that the working frequency of the speaker and the wave-guides system of the horn are always maintained at an optimum; getting a sum of + 6dB on the entire response band of the subwoofer. The line-array

quency with 56-bit precision, whereas high-performance Class-D amplification from Pascal ensures optimum levels of power are always maintained. An added layer of protection is included wherein the standby mode is automatically deployed if the units do not receive input signal for more than 15-minutes. In addition to the plethora of features, the rock-solid construction of the modules from humidity-free birch plywood ensures rugged durability, whereas it's unique aesthetically appealing design with integrated hardware built-in to the cabinet allows for multiple rigging options including vertical suspension.

The K-LA 218 DSP is an active DSP-controlled Dual 18" subwoofer that is designed to meet the high requirements of touring performance, rental and fixed installation, with the LF drivers of K-LA 218 DSP featuring two customized Audiocenter 18" drivers (4" voice coil). The unit features 3 user-selectable low-pass filters (80Hz, 100Hz, 120Hz) that help in ensuring optimum low-frequency delivery irrespective of the performance environment and/or music style. These key features make the K-LA 218 DSP a perfect match for all Audiocenter full-range speakers, especially the K-LA 212 DSP, extending the bandwidth of frequency response and delivering powerful, impressive, punchy bass performance.



SR Electronics uses AUDIOCENTER K-LA 212 DSP line array

ny would desire in a state-of-the-art sound system. We are very pleased with our decision to invest in our new AUDIOCENTER K-LA DSP rig, and we're confident that we will continue to commission great work with our new system in the future."

module's HF section features two drivers with a composite membrane (2.84" voice coil), while two customized drivers with 3" voice coils comprise the LF sections. Unparalleled control is made possible through the high-end onboard DSP that features 96kHz sampling fre-



## SOUND.COM BOOSTS INVENTORY WITH ADAMSON E12

Having earned a reputation as one of India's top audio rental companies delivering the best in sound technology, Mumbai-based firm **Sound.com** has once again bolstered its inventory with an investment in **E-Series** from **Adamson Systems Engineering**.

Sound.com's already extensive inventory now includes 12 **Adamson E12** three-way line array enclosures, 6 **Lab.gruppen PLM20K44** amplifiers and **M12 wedges**. The entire package was sourced through Sonotone and LBT, Adamson's distributor in India.

Working together, Sound.com and Sonotone have already made a lasting impact on the local market with the Adamson brand. More recently, they supported a Guinness World Record-breaking performance in Mumbai to commemorate the



Warren DSouza with Adamson E12

premiere of Amazon Prime's highly-anticipated series *The Forgotten Army*, with the Live 1000 – a group of 1,046 musicians.

"Love the Adamson E12 box because it can stand alone in a big ticket

production as well as be the perfect companion to the E15 in a stadia," says Sound.com founder **Warren D'Souza**.

"Sporting a wider horizontal of 110 degrees you can splay audio in the most difficult angles or down the array

with power and headroom to match its big brother. Here's to 12 more in our loudspeaker armoury!"

## STUDIOMASTER LAUNCHES TWO NEW UHF WIRELESS MICROPHONE SYSTEM

**Studiomaster Professional** recently launched two new UHF Wireless Microphone Systems, the **NT 50 Series** and the **NT 60 series**.

### NT 50 series UHF wireless microphone system

For decades now, wireless microphone systems from Studiomaster Professional have been synonymous with high-quality, reliable performance, and incredible value for money. Armed with this experience, the brand expanded its offerings with the launch of NT 50 single channel UHF wireless microphone system.

The series features the **NT 50 H (handheld)** and **NT 50 L (lapel)** variants. The handheld and lapel microphones integrate professional-grade cardioid

capsules to ensure clear and crisp voice pickup. One of the stand out features of the NT 50 series wireless microphone system is the integration of a Micro USB port for powering up the receiver. This allows users to power up the unit using a powerbank, making it ideal for a variety of mobile applications. On the other hand, the transmitters operate on standard 1.5V AA batteries, further increasing the mobility of the unit. Other features include backlit display for frequency indication, balanced XLR and unbalanced 1/4" jack outputs and an Anti-roll microphone grille design.

With so many features packed into a compact package, the series is highly-affordable and performance-driven.

The NT 50 wireless microphone system is engineered for a variety of touring, mobile PA, and installation applications. Both the NT 50 series variants are readily available at authorized Studiomaster Professional outlets across India.

### NT 60 16 Channel UHF wireless microphone system

The NT 60 series are a range of high-quality yet affordable 16 channel UHF wireless microphone system. The series is available in two configurations, NT 60 H (handheld) and NT 60 L (lapel).

The NT 60 offers 16 selectable UHF channels letting users deploy multiple units in one location. The transmitter and receiver can be quickly and easily connected and synced via Infrared

(IR). Both the bodypack (lapel) and handheld microphone units let the user select between the 16 UHF channels on-the-fly.

One of the most powerful features of the NT 60 series is the integration of a Micro USB port for powering up the receiver. This lets users power up the unit using a powerbank, making it perfect for a variety of outdoor and mobile applications. Additionally, the transmitters can be powered up using standard 1.5V AA batteries, adding to the mobility of the system.

The handheld and lapel microphones are engineered with professional-grade cardioid capsules to ensure clear and crisp voice reproduction. Other features include a bright backlit display for frequency indication, balanced XLR and unbalanced 1/4" jack outputs and an anti-roll microphone grille design.

The NT 60 series is truly a cost-effective and value-driven 16 channel UHF wireless microphone system ideal for a plethora of touring, mobile PA, and installation applications. Both the NT 60 H (handheld) and NT 60 L (lapel) variants are easily available at authorized Studiomaster Professional outlets across India.

Both the NT 50 series and NT 60 series are high quality UHF wireless microphone systems designed for a variety touring, mobile PA and installation applications.







DLA-212 line array

## DYNATECH COMMANDS EXCELLENT AUDIO DELIVERY IN MAL BAZAR

**Babua Light Service**, one of the most dynamic event technical solution companies in **Mal Bazar**, has confirmed that the success behind their performance lies in their comprehensive audio system that comprises of remarkable products from market leader **Dynatech**. Their loudspeaker setup hosts the notable **DLA-212 line array, DEL-218 subwoofer and CX-15 monitors**, all powered by multiple units of the formidable V-Series power amplifiers. The company confirms that this system is the backbone of their FOH line-up, aiding them in reinforcing events of every scale and nature. The speakers were purchased through The Sound Control - the official representative of Dynatech products in Siliguri.

Mr. **Babua** of Babua Light Service shares his comment on the products saying, "The quality and performance

of Dynatech products is absolutely fantastic! The DLA-212 is a line array superior in its class with great tonality and the DEL-218 subwoofer deliver impactful clear sound. The V-Series amplifiers are not only rugged and easy to maintain, but also provide efficient clean power, ensuring any loudspeaker that it powers, always sounds its best. This all Dynatech system allows us to give our customers constant high-caliber sound that has now become synonymous with our name."



DEL-218 Sub-Woofer

## N-LABS LAUNCH U1 – PROFESSIONAL DUAL CHANNEL UHF WIRELESS SYSTEM

The new **N-Labs U1** is a professional dual channel UHF wireless microphone system. The U1 features 2 internal antennas, single clip circuit with 200 unique and useable frequencies, and IR sync from receiver

phone system can be used and will sync with either the body pack or handheld transmitters. The transmitter features an on/off switch and is powered by batteries with a backup of up to 10 hours.

The UHF microphone system

frequency, battery, and signal, on both the receiver and microphones with independent volume controls.

The system also comes with Auto-Scan function, which can automatically locate a clear channel to avoid

flexible options of Dual Hand, Dual Tie, Hand + Tie, Dual Hand + Tie Combo and a five years limited warranty.

With the choice of the body-pack and handheld transmitters, the system allows users the flexibility to use the right microphones for the right job.

*Other Features include:*

1. Unique license band for interference free sound
2. Advanced digital pilot technology
3. Adopting the highly advanced PLL synthesized technique
4. Adjustable RF power in H/L mode to enhance the signal according to venue
5. 30mV RF power with Battery Backup of 10 Hours (with Duracell Ultra)
6. High Quality Capsule for Zero Feedback with Balanced Individual Output and Mix output as well



N-Labs U1 Wireless Microphone

to transmitter. The U1 has 2 separate balanced XLR outputs and 1 mix jack out on the back of the unit for easy set up. The output is controlled by the volume control located in front of the unit.

The U1 2 channel wireless micro-

minimizes interference and noise generated by digital devices and other electronic equipment. The wireless system provides ease of use and cordless freedom.

The cardioid handheld microphone comes with easy-to-read LED display of

frequency interference. With a working distance of more than 100m in ideal conditions and stellar sound quality, the system is ideal for live sound (singers, anchors, vocals).

The U1 Dual Channel UHF Wireless Microphone System is available in four





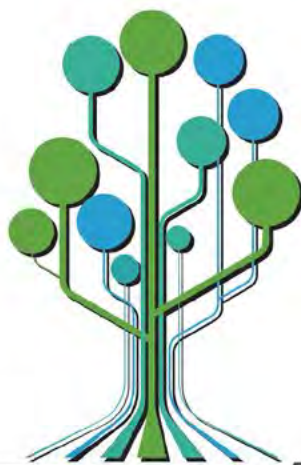
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## YAMAHA HIGHLIGHTS SOLUTIONS FOR ENTERTAINMENT AND ENTERPRISE AT ISE 2020

At February's Integrated Systems Europe exhibition in Amsterdam, **Yamaha** highlighted its support for both the entertainment and enterprise markets with its range of high end, integrated solutions.

In keeping with the motto Where Corporates Meet Entertainment, Yamaha showcased a broad product range for both the enterprise and the entertainment markets at the Integrated Systems Europe 2020, highlighting the close relationship between the company's Unified Communications (UC) and professional audio portfolios in Europe.

The UC presence highlighted the three categories of its product portfolio, all designed to deliver communication with pristine audio quality in any environment.

These included the **new YVC-330 conference phone**, which combines a compact, portable design with exceptional audio clarity. Innovative SoundCap technology with Far Field Noise Reduction (FFNR) and Yamaha's Human Voice Activity Detection technology ensures perfect speech intelligibility in any situation.

The **CS-700 video sound bar** features an integrated camera for the perfect, voice-optimized solution for small and medium rooms. Four directional microphones capture every word, with the 120° camera keeping

an eye on everything. Using an adapter, only one cable is needed to connect to a desktop or laptop computer and initiate conferences.

Yamaha UC also showcased its wireless conference microphone systems, which highlight the close relationship between UC and Yamaha's Pro Audio technology.

"With Unified Communications, Yamaha brings the



Yamaha white DZR series loudspeakers

expertise from its Pro Audio segment to the enterprise conference and communications market. Audio is the most important part of communication and it is our goal that Yamaha will

UC in Europe since September 2019.

"We are continuing to diversify our distribution system, develop new sales channels and work closely with system integrators on more complex projects, ensuring we provide comprehensive consultation and support services to the customer."

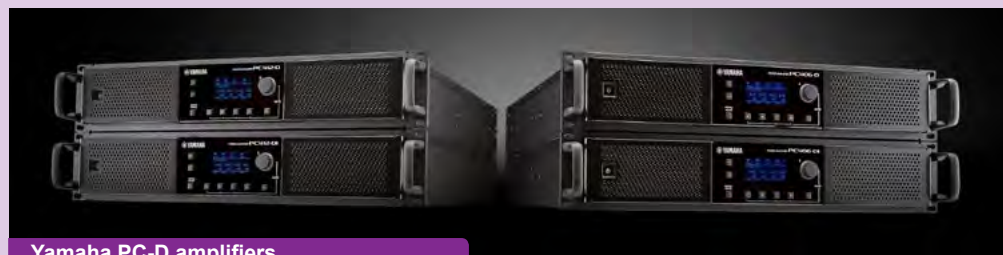
Yamaha's industry-leading digital mixing systems was also on show, including **RIVAGE PM** and the latest **V5.5 firmware for CL/QL series digital mixers**, which supports

ship **DZR/CZR series loudspeakers** and **DXS XLF/CXS XLF subwoofers** was also shown in Europe for the first time, following their launch at the NAMM Show in January. The powered DZR range comprises eight full-range models and four DXS XLF subwoofers, including 'D' versions that feature onboard Dante IN/OUT capability. Sharing the same cabinet and speaker components as the DZR/DXS XLF models, the passive CZR/CXS XLF models are perfectly matched with Yamaha's all new **PC-D range** of amplifiers to deliver very high power-handling and focused, professional sound.

All DZR/CZR and DXS XLF/CXS XLF models available in white as well as black finish provide more options for a greater variety of uses, such as hotel banquets, houses of worship and auditoriums, where a high quality audio system needs to blend into the design of the space.

Yamaha also highlighted its wide-ranging **Audioversity** education content at ISE, with a variety of training sessions available on the stand. These covered a variety of topics, including overviews of the RIVAGE PM systems, hands-on with CL/QL consoles and integrated AV control using ProVisionaire software.

**ProVisionaire Control/Touch**, the latest **Version 3.6.0** enabling complete control over the entire network chain, from mixers through to amplifiers (including **Yamaha's PC Series** and



Yamaha PC-D amplifiers

be recognized throughout Europe as an expert in this field," states **Marcus-Michael Müller**, responsible for Yamaha

the **NEXO NXAMP4X4MK2**, processors and speakers.

The new white models of the flag-

## L-ACOUSTICS EASES TOUR LIFE WITH ROBUST NEW FULL AVB RACK

**L-Acoustics** has announced the new **LA-RAK II AVB** flyable touring rack, offering twelve channels of amplification in a 9 U frame. Contained within are three Milan-certified **LA12X amplified controllers**, two **LS10 AVB switches** and power and signal distribution panels that are internally prewired to offer plug-and-play, reliable and redundant networked audio.

"Our goal at L-Acoustics is to consistently evolve our technology to optimize system design, deployment, and control, so that sound engineers can focus on creating extraordinary experiences for their artists and audiences," explains **Genio Kronauer**, Director of Electronics Development, and Avnu board member. "Launching a dedicated AVB rack is our way of making tours and mobile installations as fast and simple

as possible for sound professionals while further improving audio quality."

The presence of two LS10 AVB switches in a 1 U space within the rack allow for seamless dual network redundancy and a full AVB ecosystem from the **P1 processor** at FOH all the way down to the Milan-certified amplified controllers. If any failure occurs on the primary audio network, the redundant AVB network is standing by to automatically switch over and continue the show with zero audio loss. The console-to-amplifier AVB signal guarantees better sound quality. Up to 8 channels in one AVB stream can be passed over a single cable, saving labor and cable costs.

As with its predecessors, LA-RAK II AVB is rugged, featuring a shock-absorbing inner frame, protective and

handling elements to facilitate transport. Compatible with any voltage standard, LA-RAK II AVB functions worldwide and facilitates tour logistics and cross-rental between L-Acoustics rental partners. LA-RAK II AVB is mechanically and electronically compatible with the legacy LA-RAK II and LA-RAK standards.

"As the list of AVB and Milan protocol adopters grows, more industry professionals recognize that there is no other networking technology that fulfils the requirement for robust loudspeaker systems," concludes Kronauer. "The simple fact that Milan is the only deterministic network for professional audio guarantees precise and stable audio transport, which means better



quality. The LA-RAK II AVB will let sound professionals forget about network setup and concentrate instead on what they do best – creating amazing performances."



## JBL PROFESSIONAL VTX A SERIES LOUDSPEAKERS ACHIEVE WIDESPREAD ADOPTION IN THE INDIAN LIVE SOUND MARKET

*Designed from the ground up to serve the needs of modern rental companies, FOH engineers and tour crews, the VTX A Series is taking the Indian market by storm*

With redesigned drivers, an all-new rigging system and three flexible models to choose from, **JBL Professional VTX A Series** line array loudspeakers are quickly becoming a favorite of live sound professionals in the Indian market.

Building on the success of the venerable VTX V Series, VTX A Series loudspeakers feature several new innovations that make them the ultimate choice for touring and installed applications of any size. Next-generation transducers deliver high-output performance with improved low-frequency extension. A redesigned Radiation Boundary Integrator waveguide ensures a smooth transition between mid and high frequencies. An all-new rigging system features auto-locking suspension for faster, safer and more precise deployment than ever, and the speakers' reduced weight makes transporting them easy and efficient.

"The VTX A-Series is JBL's next-generation tour sound solution, and we're glad to see so many industry

leaders make the best of legendary JBL sound," said **Aditya Todt**, Senior Director of Sales and Marketing, **HARMAN Professional Solutions, India and SAARC**. "The VTX A12—the flagship offering from JBL Professional's tour sound inventory—was designed from scratch to address the unique challenges that rental companies, FOH engineers and tour sound production crews face."

Here's what some of India's leading live sound professionals are saying about VTX A Series loudspeakers.

"We like the VTX A12 and A8 as it offers a compact sound system with an amazing design," said **Mahesh Saniddhya** of Sound Bulls, a professional live sound company that also specializes in lights, laser systems and trussing. "We have been part of the JBL Professional family for the last 10 years, and it seemed only natural to pick a JBL product for our recent touring requirements. The sound quality is loud and clear. Working with the HARMAN Profes-



JBL VTX A12

JBL VTX A12W

sional Solutions team was smooth as always."

"The JBL Professional VTX A12 is very impressive when it comes to horizontal directivity control," said **Jitu More** of Sound Mindz, a premier sound rental company in Mumbai. "It's very sturdy and the rigging and suspension hardware is great."

## RODE EXPANDS WIRELESS GO RANGE WITH WHITE EDITION

**Rode Microphones** has announced the expansion of its Wireless GO Range. **The Wireless GO White, Lavalier GO White, Interview GO and MagClip GO** are the four additions to the ecosystem. Unveiled to widespread acclaim

at NAB 2019, the Wireless GO is an ultra-compact digital wireless microphone system that has since become the go-to for vloggers, run 'n' gun filmmakers, journalists and more. Featuring a transmitter pack with

an in-built omni-directional condenser capsule, the Wireless GO launched as the world's first truly wireless microphone system, entirely unique in its clip 'n' go versatility. There is also a 3.5mm input for connecting an external microphone like the RØDE Lavalier GO for even greater flexibility.

The receiver features a dual-purpose mount that sits snug in a camera cold shoe or clips securely onto clothing or a camera strap. Audio is sent to the receiver using RØDE's Series III 2.4GHz digital wireless transmission that delivers crystal-clear sound over 70m line-of-sight and is designed to excel in locations with dense Wi-Fi and Bluetooth activity. There is also a three-stage pad for tailoring the mic output to a camera or recorder and a bright LED screen for monitoring levels and battery life.

All of this is packed into an incredibly tiny form factor – both the transmitter

and receiver are super lightweight, weighing a minuscule 31g each.

The Wireless GO White boasts all the same features as the black Wireless GO, only the colour of the transmitter and receiver has changed – even the included furry windshields are white.

For those who prefer using a lavalier microphone with their Wireless GO, the Lavalier GO (sold separately) also now comes in white.

"This expansion of the Wireless GO range is the product of 12 months of listening to user feedback and seeing what creators need and want," says RØDE CEO **Damien Wilson**. "We are always in tune with how our products are being used and who is using them, and we constantly push ourselves to create new products that inspire and encourage creativity. Keep an eye on the Wireless GO range in the coming months, there's more to come."





## HI-TECH AUDIO SYSTEMS - 30 YEARS OF EXCELLENCE, TRUST AND LEADERSHIP

Progress is only possible when you decide to lay the foundation of strong-willed beginning. This is what the founders of **Hi-Tech Audio Systems Pvt. Ltd.**, Mr. **P.K. Gupta** and Mr. **Rajan Gupta** envisaged in the year 1990 when the New Delhi based company became Dealers of Philips CSI for Public Address and Conference Systems.

With strategic thinking, training, investment in new technologies and resources through a clear focus,

distribution of professional audio, video & lighting products, professional safety & security solutions, communication systems, after sales support, technical trainings & demo among other state-of-the-art services. Recently Yash Gupta and Shaurya Gupta, the third generation family members joined the vast growing company.

Strengthened by dedicated sales team who are supported by enthusiastic technical experts, Hi-Tech Audio Systems is authorized India distributor of

relationships with rentals companies over the years specializing in AV products. Pro Audio brands like L-Acoustics, DiGiCo and RCF, Hi-Tech Audio Systems offer apex product series to the rental companies. Technical support team of Hi-Tech Audio Systems works closely with the rental clients from providing them intensive product trainings to live show support. The company also guides their clients on new inventory investments by organizing regular demo sessions and road shows in differ-

degree sales initiative backed by impactful marketing promotions.

### Milestone Projects

In the last one decade, Hi-Tech Audio Systems has successfully executed myriad of projects varying from government buildings, hospitality, enterprise & corporate, stadiums, retail chains, malls, educational institutions, airports, clubs & lounges, convention centres, museums and galleries, etc. With in-house team of Engineering & Design team of



RCF TTL live demo, New Delhi



Klang-DiGiCo Live show

today the company has a consistent turnover of 150 Crore+ and growing every year in Professional Audio, Video, Communication & Security verticals making it India's one of the biggest Pro Audio, Video and Lighting Company.

Along with P.K. Gupta and Rajan Gupta, Hi-Tech Audio Systems is spearheaded by Nitin Gupta, Nirdosh Aggarwal, Manik Gupta and Ankit Gupta, who are well-known individuals of the industry. Currently the company is offering an array of services ranging from professional sound reinforcement solutions,

global iconic brands like

RCF, L-Acoustics, DiGiCo, ETC, MA Lighting and other such names of audio, video and lighting industry. 30 years journey of Hi-Tech Audio Systems has been remarkable as the company now have offices in 3 major states beside New Delhi (Head office) - Uttar Pradesh, Mumbai and Bengaluru. In-house service centre equipped with trained staff for handling component level repairs is an added factor for the company to offer the best to its clients.

### Relationship with Rental Companies

Hi-Tech Audio Systems has built great

ent cities. Such business practices also opens new avenues for both parties as they can interact closely before taking lucrative decisions.

### Wide Network of Dealers and Growth-Partners

Hi-Tech Audio Systems has extended their partnership to dealers in Tier 1, Tier 2 and Tier 3 cities. Renowned system integrators, sound engineers, DJs, club owners, commercial audio installers, lighting engineer and lighting designers have been significant part of Hi-Tech's growth journey. The company's dealers propel the movement of audio and lighting products by following 360

25+ professionals including certified pre-design engineers, AutoCAD engineers, audio 3D simulation, AV application & field engineers, Hi-Tech Audio System can deliver top-of-the-class quality projects to their clients. From supplying, installing, testing and commissioning of audio, video and lighting equipment, Hi-Tech Audio Systems is a one-stop solution company with highest level of commitment.

### Towards a new decade

As Hi-Tech Audio Systems enters its 30th year the management is focused to introduce avant-garde technologies and new audio, video & lighting brands for the Indian market. Another agenda for the company is to educate its rental clients through regular technical trainings and product demos. This will help the company to have personal interaction with existing clients and new prospects. Beside the metro cities, Tier 2 and Tier 3 cities of India are becoming active by investing on cutting-edge AVL products. This is the right time for Hi-Tech Audio Systems to capture the market with ceaseless support to clients and build a client relationship based on trust.

### L-Acoustics Open Day conducted by Peter Owen





## SENNHEISER ANNOUNCES NEW DISTRIBUTION PARTNERSHIP WITH AUDAC

Sennheiser, the German audio giant today announced its exclusive distribution agreement with AUDAC to expand its presence in India market. With this partnership, Sennheiser will manage the complete sales, distribution and services of the comprehensive range of innovative audio products and solutions by AUDAC.

On this occasion, Mr. **Vipin Pungalia**, Director, Professional Segment, Sennheiser Electronics India said, "The partnership with AUDAC comes as a great delight to us and will further help us grow and strengthen our presence in the market. We always aim to provide our customers with best class products and services and this partnership will effectively and efficiently help us in reaching our customers and reinforce our footprint in India. Sennheiser has one of the largest sales, service and support system in India. This also gives us the opportunity to offer the wide-ranging products and solution range across the professional ecosystem to make our customers integration easy and efficient. We



**Mark Asselberghs, Audac's International Sales Director, and Puneet Kumar Kain, National Product Manager at Sennheiser**

believe that together, Sennheiser and AUDAC will provide a great portfolio to

serve the growing audio market.

AUDAC's International Sales Director, **Mark Asselberghs**, is equally excited with the new appointment. "Sennheiser is a well-established distributor who knows their market inside-out. They understand the importance of not just selling a product, but the added value of excellent service and technical assistance at every stage of the project. And that is exactly what AUDAC stands for."

There has been a growing demand for audio equipment and solutions in the market. This collaboration will provide a plethora of products and solutions for the customers and businesses. It will bring AUDAC's wide range of speakers, digital matrix system, amplifiers; solutions like ultra-compact wall speakers, ceiling speaker solutions with subwoofer to the customer.

It further strengthens Sennheiser's ability to provide a technologically driven integrated sound solution to businesses, and customers operating in the professional audio segment. The tie-up will also accelerate the professional velocity of the business.

## MARTIN AUDIO LAUNCHES HIGH-PERFORMANCE CARDIOID SUBWOOFERS

**Martin Audio** has announced the release of two new compact, high performance cardioid subwoofers, the **SXCF118** and the **SXC115**, suitable for both live sound reinforcement and fixed installations.

The SXCF118 is a flyable version of the SXC118 released last year and has been purpose designed to accompany the WPS optimized line array system, while the ground stack SXC115 is set to partner WPM.

The SXCF118 combines maximum low frequency output with exception-

al pattern control. It features an 18" (460mm) forward facing driver and a 14" (356mm) rear facing driver, each driven independently by separate amplifier channels and DSP. Each driver has its own chamber with optimized bass reflex porting.

The recommended iK42 amplifier optimizes the DSP parameters for front and rear drivers to maximize the rear rejection—from 21dB at 43Hz to 28dB at 75Hz. This keeps low frequencies away from stages and walls as well as reducing reverberant energy in the room

improving low frequency response accuracy and impact.

The enclosure is constructed from tour-grade plywood and finished with a hard-wearing textured polyurea coating. It is equipped with four grab handles, while foam-backed perforated steel grilles protect the front and rear drivers. Integral flying hardware, coupled with the WPSGRIDT touring flying frame, allows the SXCF118 to be incorporated at the top of a WPS array, or flown as a separate array alongside.

The SXC115 follows similar principles and contains a 15" (380mm) front facing

driver and 12" (300mm) rear facing driver, each driven, again, independently by separate amplifier channels and DSP. Each driver, similarly, has its own chamber with optimized bass reflex porting. In front of the enclosure, the output from the two drivers is additive, giving an extra 1dB of output when compared with a conventional 1 x 15" subwoofer and 21dB at 43Hz of rear rejection. It is the perfect accompaniment to WPM or indeed with a pole mount for Martin Audio point source loudspeakers.

**Dom Harter**, Managing Director, said, "We were delighted with the response to our initial cardioid subwoofer last year and this has really driven the demand to release these two further products. This also means we have announced 12 new products in the first three months of the year which is a record number of new products for us in such a time frame. We are consistently reviewing the market and our customer needs, and working tirelessly to offer our partners the optimal solutions between technology and price to win in the marketplace."



**SXC115 Compact, High Performance Cardioid Subwoofer**



**SXCF118 Compact Cardioid Flown Subwoofer**



# The ART and CRAFT of Sound Design

*Interview with **Bishwadeep Chatterjee***

*PT met up with Bishwadeep Chatterjee, one of India's most esteemed Sound Designer. In this extremely insightful interview, he generously shares his unique perspective and experience on music recording and sound design.*

## **H**ow did you get into a career as a recording engineer?

My interest in music got me into this field. I was not cut out for a conventional job like banking or engineering jobs. I was looking for something related to music and the arts. Though there were limited facilities for learning music in those days, you did not have any facilities for learning music production. A little research and networking eventually led to me applying for the FTII in Pune. Fortunately, I had a father who supported my decision to apply for such an unconventional field. I cleared the entrance examination and the interview that followed. As I entered the gates of FTII, I knew I had come to the right place.

## **Did you not want to be a music director instead of a sound designer or a recording engineer?**

I had joined FTII to specialize in sound recording and sound engineering. Back in the day, this was the only place that gave us that option. We learnt how to record sound on location, dialogue and sound effects recording, song and music recording and mixing, film soundtrack editing, designing and film mixing. We had an integrated curriculum where we learnt motion picture photography, film editing, direction and screenplay writing as well. We also had lectures in music by musicians of various genres. FTII graduates were qualified to make films. You could become a composer or anything you wanted, related to films, but composition was

something I didn't really get into. I chose to work on the technicalities of recording first before being involved in the aesthetics, like design and music production. It's just that we didn't get separate credit for it. But our generation was very lucky; we saw the exit of the vacuum tube, we largely worked on analog medium and then witnessed the coming in of the digital medium.

## **How easy or difficult was it for you to adapt to new technologies?**

It's not very difficult once you are trained in the basics of recording and then it's all about the mindset. Either you adapt to the new technology and move on or stagnate. Those who became complacent with the conventional ways and did not upgrade themselves, were being left behind. Mumbai thankfully is place where every time a new product or technology is launched the recording and mixing engineers get to know about it and we also get a chance to try it out. This communication and interaction with vendors, companies that launch new products, fellow technicians etc. is very necessary because besides learning about new technologies, we have the opportunity to experience how it sounds in other studios too. The need to keep ourselves updated is a natural progression. In the late '90s, digital technology became a reality in Mumbai. I was fascinated. It was the first time I was experiencing the concept of non-linearity with the AVID. I took a full demo of the product and realized that non-linear was the future. I



**Bishwadeep Chatterjee**

went in for a workstation and explored how I could exploit it to the maximum. With the advent, evolution and development of digital technologies, I don't really miss analog today any more. It was good while it lasted but today I am

much more flexible and I can concentrate more on the program than the mechanics of it. I am loving it and I think we are living in very good times.

**So you recommend FTII to people who are aspiring to join the film industry?**



Yes, because unlike other countries, in India the film industry still rules music. There is no independent music industry as such, and television is only recently become an independent industry. Movies are where you get your recognition and that's the biggest platform. You could be a very good composer but sadly, nobody knows you unless you score the music or compose songs for a film. The same goes for every department... be it acting, direction, cinematography, editing, sound, production design etc. FTII, I believe would be a stepping-stone to this platform. Being a government institution, it's much better equipped and much cheaper than most private options.

**You have recorded some major Bollywood soundtracks, what are some of the main technical challenges and how did you overcome them?**

There is always some challenge. During the initial stage of my career, I first started doing location sound recording for a documentary by **Ketan Mehta**. Then I worked on a film called *Salaam Bombay*, where I was assisting the main technician who was from LA. Back in 1987, we were doing sync sound recording and were shooting in places like Grant Road, Kamatipura, Colaba etc. That was a huge challenge. Meanwhile in our film industry, the concept of location or sync sound recording was discontinued around the '70s with portable analogue recorders like the **Nagra** becoming popular. Soon they realized that all the dialogues could be dubbed in a quiet studio and they did not have to spend on 'blimped' cameras and generators. So now the shooting sound was limited to just a pilot guide track. Today I am glad sync sound is back again. Dubbing sounds fake and we must only dub where it is absolutely necessary.

I wanted to get into music recording, which was my main intention when I initially started pursuing a career in this field. For a long time, from 1989 to about 2000, I was mostly doing song and music recording and I enjoyed it. The challenge was to adapt to a new technology and everyday was a challenge because you had a new product each time and you were learning something new every day.

My biggest recognition came from



**Bishwadeep Chatterjee with Team URI: The Surgical Strike, a film for which Chatterjee won the National Film Award for Best Audiography**

the film *Hum Dil De Chuke Sanam* thanks to music director **Ismail Darbar** and **Sanjay Leela Bhansali**. There were a handful of studios where film songs used to be recorded. Each studio had a distinct sound of its own; I could identify which studio a particular song was recorded just by listening to it. Naturally there were inconsistencies when each song of the same film was recorded in different studios and were stringed together and handed over to the respective music companies...there was no concept of "Mastering". I wanted to change all that. I sat down with Sanjay and Ismail and explained to them that we need to do something different. I wanted to record all the songs in my studio, but there were times when they

fader and mute automation. The biggest challenge would be to make notes of the eq and compressor settings with a pen and paper as only mute and fader automation data could be 'recalled'. Now the next challenge was more aesthetic. I processed instruments like the violins, the woodwind, brass, percussions, the mandolins etc. very differently from what the typical trend was in Bollywood at the time. My generation at that time was trying to rebel and bring in a 'new' Sound in Bollywood. I started treating the songs in a different way. I had got myself a **SADiE** workstation by then. I loaded the SADiE with the 2" 24 tracks and I would edit, cut, paste tracks that I needed to and use it to double my outboard effects processors by

**Never take short cuts...!! One can always perceive the compromise in quality! It is the attitude you have towards your own creation that will bring recognition and with that, the respect that you so much deserve.**

had to book other studios as mine was not available sometimes. Then I asked them to bring all the tapes to my studio so that all the mixes at least could be done by one person. This itself made the whole album sound very consistent. The studio I was working for was Spectral Harmony in Santacruz. It was designed and named by me. We had the **Otari MTR 90 MKII** - 2" 24 track machine (with Dolby SR in every track). I had the **Soundtracs Solitaire** mixer, which had

recording the processed tracks on it so I could free the processors for other instruments or vocals. I took three to four days for mixing a song and achieved the quality, because I was spending so much time on the product and doing it with so much care. With the support of both Sanjay and Ismail, we came to a fantastic mix and then I dropped the bombshell that I want to go and master this in London. Sanjay, Ismail and I got it mastered at the Townhouse studios

in London. The Album and the film created a sensation. Spectral Harmony was a tiny studio by Bollywood film song recording studio standards. This album broke the myth that you needed at least a 5000 square foot area studio to record a film song. I was now on the "Bollywood Map".

**Who are the top five music directors/composers you like to work with?**

I like to work with every music composer. I am not being diplomatic because for me it's a creation by an individual and I have been chosen to be a collaborator. I have been fortunate enough to work with most of the very good music directors. I have worked with **Ismail Darbar**,

**Vishal Bhardwaj**, **Shantanu**

**Moitra**, **Amit Trivedi**, **Annu Malik** etc. I mixed the songs for Shantanu Moitra's *Ab ke Sawan*, *Lage Raho Munnabhai*, *Parineeta* and *3 Idiots*, even though I had started working on these films as a sound designer. I have not really had the chance to mix a song with **A R Rahman**, but I have worked on three films for which he had composed the music - **Sachin**, **A Billion Dreams**, **Sanju** and **Shikara**. I have recorded and mixed **Silk Route's** *Dooba Dooba* album, **Mika's** *Sawan Mein Lagi*. etc. As independent music bands and composers, they were just great.

I have even worked with senior music directors like **Naushad**, **Pyarelal**, **Bappi Lahiri**, **Uttam Singh** and many others but my biggest regret is that I could never work with **R D Burman**, **Salil Chowdhury** and **Kishore Kumar**.

**What is your advice to independent music producers doing their own production in project studios or home studios?**

Never take short cuts...!! One can always perceive the compromise in quality! It is the attitude you have towards your own creation that will bring recognition and with that, the respect that you so much deserve. Even the average gear that you work with comes at a staggering price- treat that as your 'investment'. Cut costs but don't cut corners. If you have to record a live instrument and you don't have adequate gear or your own decent studio, hire a proper facility to record that instrument or those wonderful vocal parts...it will stretch your budget a bit, but you will never cringe at an inferior patch in your



otherwise fantastic track. I would not be able to live with the guilt of mediocrity. This was the very reason that made me buy expensive studio monitors with great difficulty when I started out on my own, because I needed to hear right to record right. There is a way of intelligently preserving the quality; it depends on how you source it and how you plan your work. Keep yourself updated with all the new developments in your field. Today you have the internet and social media... There are really no excuses.

### Which was your last project as a studio music recording engineer and your first as a Sound Designer?

My 'last' major project as a studio music recording engineer was **Devdas**. Starting with **Devdas**, I think I was the first music engineer in Mumbai who went from mixing his own stereo song mixes to mixing them in 5.1 surround for a film. I would also mix the film score in surround. I was never happy with the way film mixing engineers would mix songs or the music score. This whole exercise acted like a catalyst towards switching over to sound designing for films. I didn't want to restrict my involvement to just the music in a film. I wanted to create the entire soundscape of the film... The sound effects, the musical effects, the stylization, the tonality of the dialogues etc... I had explored almost all aspects of recording music and felt the need to do what I had always wanted to do since I was at FTII - design sound for films. With the advent of more sophisticated 'VSTs' Acoustic recording was diminishing and music producers were doing a great job in their home studios. As a recording engineer, I started finding my involvement in music recording to be very limited. We used to spend an average of 10 days per song in a studio, right from conceptualization, programming, recording, to the final mix. We were now hardly using one or two days for live recordings in the studio. As a result, many big studios started folding up since the billing went down and the music industry started going into a recession. This was a worldwide phenomenon. Under the circumstances, to survive as a music recording engineer would mean attaching myself to a composer, which I did not want to do.

My first film as a sound designer was a Bengali film called *Chokher Bali* by the late **Rituparno Ghosh** starring Aishwarya Rai. I recorded most of it in Kolkata and did most of my sound designing work over there. I also recorded the music there and went down to Chennai

to record the string section. None of the studios in Mumbai then had a Pro Tools system, so I took it to **Ramoji Film City** to do the mix. It was a fantastic experience and it gave me the confidence that I needed as a sound designer. The second film that I worked on was a film called *Raincoat*. I started with my own workstation. I brought a **Pyramix** and carried my entire workstation into the mix studio. I did the mix of this film in that process. I was always challenging the system. The agents of Dolby at that time would say you can't work like this, you have to bring it in Hi-8 tapes and 24 tracks. My only problem was that I was 20 years ahead of my time. Later when Dolby themselves stepped in, all of that changed of course and they were much more encouraging. I have been working in a similar fashion ever since. Eventually I bought my own Protools and the films that followed soon after were *Parineeta*,

to take me. There is just one challenge we face and that challenge is that the film's release date is fixed, theatres are booked, overseas release is planned, marketing and announcements have been done, but are we given the film on time? Is the VFX completed on time?

I would prefer to have 3-4 months to work on a project, but usually what happens is that they give it to you when there are hardly 20 days left. A lot of time is invested into the visuals, VFX, rendering, editing but the general impression is that the sound can be taken care of easily. I have learnt not to crib, as that does not help. I don't want to be the problem but rather try and be the solution for the entire process. This gives the film makers the much - needed confidence in a crisis like situation. What I always do is that I start taking the edits of sequences as and when they are completed so I can start the work

hear exactly what we are mixing and we have to be careful not to become gimmicky. You can't just put random things in the surround, or instead of watching the film people will keep turning their heads to hear what these sounds are. You have to understand where not to step above the film.

### Is there any difference when you are doing 3D movies?

With 3D movies, the challenge we face is that a lot of films are made into 3D in the post, but what is disturbing is that we have mixed the film for a 2D format. In a 3D format, there is a huge change in visual perspective. We don't have 3D mix theatres and many movies like *Padmavat* have been released in the 3D format. Since the visual perspectives (and in many cases the magnification) change, the sound mix does not seem to compliment the visuals. I am working on a particular film where I am insisting that if they are planning to release it in the 3D format, then we must do a separate mix with proper 3D projection in mix theaters- this will also have some technical challenges as workstations like the Protools would have to play 2 parallel picture files simultaneously... (I don't know how they'll do it).

### Do you have a library of your mixes and tracks? Is there a process you go through deciding how much sounds you take from an already existing library versus creating entirely new sounds for a given project?

Yes, I do have a huge collection of several terabytes. For **Uri** I had decided that we didn't want to use the old stuff. I have a very large collection of guns and choppers, needed for a war movie, but for **Uri** I decided that we need to upgrade our library. I did not want to use the same sounds all over again. I needed sophisticated sounds, more contemporary sounds. Whenever there was a requirement, I buy and download libraries, I also have a collection of sounds recorded by me and my team. I record foley, process it as per the requirement, enhance them with my library sounds and blend it with the other elements in the effects tracks. For instance, in *Bajirao Mastani* I had five or six layers of just *Bajirao's* footsteps because the footfall of this king had to have 'authority'. The crunch in his step, the leather squeak, the heavy sole, a low frequency thump all combined to create the desired effect. We are conscious about what we see, but usually not about what we hear. All these minute details add a certain 'weightage' to the visuals which we can 'feel'.

(Continued on page 59)

## In a documentary, you cannot take certain liberties, which you would otherwise in a fiction film.

*Eklavya, Lage Raho Munnabhai, 3 Idiots* etc. to name a few.

### What is your go to gear for getting the job done?

If you ask me, then I want the world. I have six studios, and all of them have the **Pro Tools** because that is something I really love. I wanted to get the control surfaces, but I cannot afford them right now. I would like to maybe get the **S4**. I have some outboard gear like the **Bricasti** Reverb unit and **SSL Compressor**, but I would like to get some more like the new **SSL Fusion**. I prefer **Genelec Speakers**; all my studios have them. I love the Genelec sound because of the consistency I get from them, and it is something that I could not compromise on. You are ultimately going to be designing a mix depending upon what you hear. I use the **Genelec 1037c** with corresponding subwoofers and I have the **Genelec 8050s** and **Genelec 8040s** in other studios. A recent Plugin that I really liked was the **iZotope Bundle**. I bought the **iZotope 3 Bundle** that has got pretty much everything. It is an expensive bundle, but it will help me not just in dialogue and effects processing but also in music.

### Is the timeframe for completing a project sufficient?

I am very confident about time. If a particular project comes to me, I pretty much know how much time it's going

of sourcing, planning out, aesthetically thinking of key sequences of the story line. This is pure time management because I am constantly trying to stay ahead to avoid a crunch when the final edit is ready.

The Sound Designer is like a composer, it's just that we are composing sound to try and get a particular effect. My aesthetics come into play when I design the sound. Dialogue, effects and music has flow seamlessly, with the visuals. They should not individually stand out or it will be very distracting for the viewer.

### How challenging is it to work with multi-channel systems and technologies like Dolby Atmos and Auro 3D?

I have never worked on Auro so I cannot comment on that format, but I have extensively worked with Dolby, right from 5.1 to 7.1 and to the current Dolby Atmos. It's not so much of a challenge for me. I'm a lot more comfortable because with the Dolby Atmos, diverse sounds are becoming a possibility and that is something which I am relishing today and which is why I say we are living in good times. Earlier when we used to record sound in optical, we were stuck with a 30 dB dynamic range; we had to try to pack everything into that but today the entire spectrum of sound can be heard and that's the beauty. However, I have to be a lot more careful now about what I put in my soundtrack because everybody can



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## ANSATA & IZOTOPE CONDUCT FIX, MIX & MASTER SEMINARS AT MUMBAI & CHENNAI

**Ansata** in association with **iZotope** organized a one-day seminar in Mumbai and Chennai, on 18th & 19th November 2019. iZotope's Sales and Products Specialist – **Richard Morson**, conducted the seminar.

Spanning an illustrious career, Richard Morson has been involved with cutting edge audio technology products his entire career. Having worked with esteemed audio technology companies, the likes of which include Euphonix, Studer and now iZotope - a pioneer in audio signal processing products that makes use of machine learning and artificial intelligence to simplify otherwise tedious and time-consuming audio processing tasks. His depth of knowledge with audio technology is unsurpassed and this was of great benefit to the customers who received a deep insight into the products demonstrated during the seminars.

Ansata and iZotope to help

production process, even to seasoned users. Richard broke things down in a simple & easily comprehensible manner even for some of the less experienced members in the crowd to understand, appreciate, and use in their day-to-day work.

**P A Deepak** – a Grammy award-winning Sound engineer, and one of the attendees who participated in the workshop, shared his feedback about the initiative as he commented, *"Firstly thanks for the effort in connecting all of us and making this happen. I somehow missed the previous seminar, this time I made a point to join up as Izotope is my favourite plugin manufacturer and I love their innovative products. The seminar was a gathering of a good set of industry's true engineers who buy and encourage innovative products from the likes of Izotope and many more. I'm hoping we do more of these events in the future."*

The seminar covered a wide range of products like Ozone 9, RX 7, Neutron

Rebalance, Master Rebalance, Low-end focus, EQ Match, Ambience Match & Reverb Match allow for complex audio processing tasks to be achieved easily with just a few clicks as they are built upon Machine Learning based assistive audio tech.

The sessions in both cities enjoyed a very good response, totaling around 200 participants with visitor profiles in both cities comprising of senior industry professionals in music & post, plus students and teachers of audio engineering schools.

Talking about his impressions of participants attending the seminar Richard commented, "Hosting the iZotope Seminars in Mumbai & Chennai on the 18th & 19th November 2019 with Ansata was a huge honour, highly enjoyable and an absolute privilege. Starting with Leslie and Dipanshu's hospitality and the organization of events, which was second to none. Participation was amazing with a great turn out of attendees. The level of interest from those that joined

at the 'KM Conservatory Auditorium' – Both the events witnessed students & faculty members, seasoned engineers, and audio professionals.

Some of the noted attendees included senior sound engineers like Bishwadeep Chatterjee, Anuj Mathur, Baylon Fonseca, Farhad Dadyburjor, Resul Pookutty, Vijay Rathinam, Madhu Vishwanathan and fraternity of sound engineers from A R Rahman's AM Studios. Participants across both cities had dedicated time for Q&A, where doubts and ideas were befittingly addressed by Richard Morson. They were extremely happy to have had the opportunity to get such a deep understanding of the various products presented and discussed, from a seasoned audio technologist like Richard, compared to what they would otherwise be exposed to in their day-to-day work lives even when using these products.

**Leslie Lean** of Ansata says, "Our core philosophy and goal is to



**Full House at the iZotope Fix, Mix & Master Seminars in Mumbai & Chennai**

improve the everyday tasks of audio professionals working in the segments of post-production, music mixing & mastering meticulously planned the seminar. The lucky attendees of the iZotope workshops walked away with a ton of useful tips on using these products. The sessions had great tips on audio cleanup, dialogue replacement, music mixing and mastering. Some of these topics are without a doubt among the more mysterious and confusing aspects of the audio

3, Insight 2, Nectar 3, and the revolutionary new Dialogue Match. Richard delivered a precise overview of the plugins and its capabilities to achieve quick yet good results while dealing with the complex and time consuming audio processing needs of music and audio post projects in Films, OTT & broadcast. With these products, topics like dialogue replacement, noise reduction and repair, metering, intelligent audio mixing and concepts of audio mastering were discussed. iZotope's unique technologies such as Mix

us was very high with lots of questions, comments, and feedback about the products, which is always a good sign that people have really engaged. Not to mention that having people ask to have photos taken with me made me feel like a Rock Star!!! I can't wait to come back to India for more events. Big thanks to the Ansata team and all of those that attended."

The session in Mumbai was held on the 18th Nov. at the 'The Club, DN Nagar Andheri' while the session conducted in Chennai on 19th Nov. was

make available great products at affordable prices and back it up with training sessions like these to make sure the buyers learn and use the products to the maximum effect and develop a better appreciation for them. This, in turn, encourages the good news about these products to be spread through word-of-mouth in their group of peers and colleagues thus delivering us newer customers for these amazing brands who get benefited in the process as an end result."



## DIGICO ANNOUNCES DMI-KLANG – IMMERSIVE IN-EAR MIXING EXPANSION

**DiGiCo** announced the launch of the new **DMI-KLANG** at NAMM 2020, an immersive in-ear mixing expansion that can be mounted directly into DiGiCo consoles, equipped with DMI slots.

KLANG's immersive in-ear mixing systems make spatial and transparent in-ear monitoring possible. With lower listening levels – on average up to 6dB less – it eliminates the feeling of isolation associated with a normal in-ear stereo mix and offers less fatigue. Its applications range from personal mixing for touring monitor engineers to spatial mixing for recording studio sessions.

The DMI-KLANG follows in the footsteps of the KLANG:fabrik. "This is

the first hardware product since KLANG and DiGiCo joined forces," says DiGiCo's General Manager, **Austin Freshwater**. "We took KLANG:fabrik's immersive in-ear mixing core and rebuilt it with



today's latest FPGA technology. With one device, we can now deliver immersive

mixes of 64 inputs for 16 musicians. This is the highest input count of any KLANG product to date. And the best thing is, we were able to bring the processing latency down to a quarter of a millisecond."

The DMI-KLANG connects directly to DiGiCo consoles' internal audio stream without any additional hardware I/O or overhead. This makes it possible to route any audio channel from the console to the DMI-

KLANG and return the immersive mix to the Aux merge input. Via the DiGiCo

KLANG console link, monitor engineers can use snapshots, faders, and knobs, but with all the benefits of immersive in-ear mixing.

"The DMI-KLANG is just the beginning of a new line of products," says KLANG's co-founder **Pascal Dietrich**. "Together with the DiGiCo OrangeBox and the many I/O expansion cards available today, we can now interface with almost any professional digital mixing console."

Available DMI cards offer MADI (TP, BNC), Optocore, Dante and many other digital formats. Additionally, by utilizing the KLANG: app, personal mixing can be done on any tablet, smartphone, or PC/Mac.

## ALLEN & HEATH'S AVANTIS MAKES DEBUT IN INDIA

**Sun Infonet Pvt Ltd.**, **Allen & Heath's** exclusive distributor for India, marked the launch of the much-anticipated **Avantis** digital console with a series of events.

Taking place at prestigious hotels across four cities in India: Mumbai, Delhi, Bangalore and Chennai, each launch event was led by Allen & Heath's Director of Sales (APAC)

**Jamie Ward** and featured a presentation on the making of Avantis, an in-depth rundown of its features and a Q&A session.

The events also included one-on-one time with the console and guest demonstrations from some of India's most prominent sound engineers

and artists. Feedback from attendees has been incredibly positive and many took the opportunity to have their questions answered by the team.

Avantis is the third mixer based on Allen & Heath's 96kHz XCVI FPGA engine and provides engineers with Continuity UI, extensive I/O options, add-on processing from the flagship dLive mixing system and a rugged full metal chassis.

"This incredible console not only improves the overall workflow for engineers but is armed with all the essential features needed to execute a smooth show (big or small) some of which can be found in the most high-end consoles. Avantis is bound to be a game changer in the field of broadcast and

live shows," comments **Neeraj Chandra**, Director, Sun Infonet Pvt Ltd.

Avantis has already received many gleaming reviews from end users who have tested it in the field.

"This is a really awesome product with a metal body built for rugged use in the Indian climate. The unique design can be tailored to individual engineer requirements and it's easily transported from one place to another," commented Delhi-based rental company owner, **Tanish Sakhuja**.

**Jayakaran**, Sr.Live Sound Manager at Sun Infonet and FOH Engineer for Vic and the Big Fish, added, "Vic and the Big Fish had been signed up to perform at the showcase and show the real field

operation of the console to those who were in attendance. With limited time for soundcheck, Avantis showed its capabilities on day one - the band was extremely happy with what they heard on their IEMs and I was happy with the way they sounded with minimal processing. Thanks to Avantis' preamps and continuity UI, it just gives me the controls I need right at my fingertips."

"Avantis is the best upgrade for customers who are looking for a 64-channel console, with 96kHz next-gen technology, more auxes more FX at the best possible ROI", concludes **Tanmay Masurkar**, Sun Infonet's in-house Audio Engineer.

Allen & Heath event, Mumbai



Allen & Heath event, Delhi



Allen & Heath event, Bangalore



Allen & Heath event, Chennai



## MACKIE INTRODUCES ELEMENT SERIES MICROPHONES

Mackie has introduced their new **EleMent Series** microphones. Like all Mackie gear, EleMent Series mics combine professional-caliber performance and Mackie's famed Built-like-a-tank rugged reliability and outstanding value. The series consists of three models: the EM-89D Live Vocal Dynamic, EM-91C Large-Diaphragm Condenser, and EM-USB USB Condenser microphones.

The **EM-89D** dynamic microphone features a cardioid polar pattern and is primarily designed for stage use but can also be used as a studio

microphone. It's a handheld vocal microphone and excels as an instrument and amplifier microphone. The EM-89D comes with a mic clip, XLR mic cable, and zipper pouch.

The new Mackie **EM-91C's** audio quality and classic cardioid polar pattern makes it suitable for a wide variety of studio applications. Though the EM-91C is recommended for use with stringed instruments, it can also be used for live streaming, voiceovers, and many other types of content creation. The EM-91C comes with a shock mount and an XLR mic cable.

The Mackie **EM-USB** condenser

microphone can connect directly to a laptop or mobile recording device using USB-C and features a built-in headphone output with independent volume control. It also provides controls for main input gain and mute. The included mic clip, tripod mount, and USB-C cable.



Mackie EleMent Series

## FOLDER TRACKS COMING SOON TO PRO TOOLS 2020

The first **Pro Tools** update for 2020 will bring one of the most highly requested and anticipated features to the world's industry-standard **DAW Folder Tracks**. This feature, along with its many possible workflows is one that positively affects and helps Pro Tools users from all types. Whether you're writing, recording, editing, or mixing, efficiency and organization is essential to stay focused on getting your ideas down and sounding their best. During the process of creation, editing, and mixing, sessions can get quite complicated and difficult to manage, even small track count sessions can become unwieldy, depending on the amount of work being done. This is where Folder

At launch, here are just some of what you'll be able to do with Folder Tracks in your session:

- Organize tracks into collapsible folders (up to 8 layers)
- Drag-and-drop tracks into folders with ease
- Color-code folders
- Edit the folder itself, thereby automatically editing the "member" tracks simultaneously
- **Basic Folder Track Functions:** include reordering tracks in and out of folders, open/close folders, and propagation of show/hide and active/inactive actions to member tracks.
- **Routing Folder Tracks:** allows audio

ly edit clips across all member tracks. On open folders, all edit commands that are currently available on multi-track selections are allowed; A smaller core set of edit commands are available on closed folders and will allow users to perform many useful edits without having to open folders.

- **Track Presets:** Folders with their nested members can be saved and imported as Track Presets, expanding the already powerful feature.
- **Backward Compatibility:** When sessions with folders are opened in Pro Tools versions earlier than 2020. R1, Routing Folders turn into AUX tracks, while Basic Folders are simply dropped. Nesting is flattened.

Even just a quick overview of these Folder Track options, it's easy to see how any Pro Tools user can start utilizing this amazing feature to manage their sessions, increasing efficiency through organization, all in the name of keeping every user in their most creative and focused mode. There will be an abundance of ways to incorporate Folder Tracks into your workflow. Here are a couple of basic examples showing how one might incorporate Folder Tracks into their workflow.

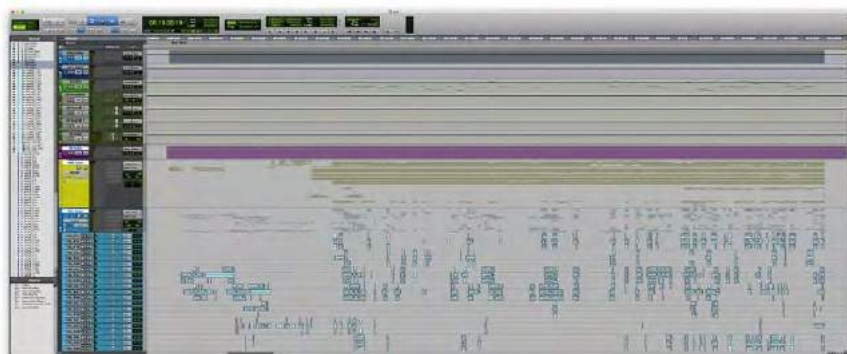
### Folder Tracks for Music

The simplest, yet most powerful example of using Folder Tracks in a music session is using folders to organize your tracks by type. For instance, in the example photo below, you'll see that tracks are organized into folders, based on the track type. Lead vocal tracks live in the hot pink folder titled "Vox Lead folder".

You'll notice that the Track UI is now a bit different, with icons on the bottom left of the track information area, indicating that this is a folder. Additionally, you'll notice the UI change above the folder title, as well as the same color around a thin border across the track information and additional track modules (Inserts, Sends, I/O, Real Time Properties, etc...). This all exists to ensure that you'll easily be able to distinguish a track from a folder. Looking into the main edit/arrange area, you'll notice that a visual representation of all the tracks that exist in the folder. In the example below, you'll notice that the green "Horns folder" has 4 separately colored tracks, living in this folder. Remember, folders can also be saved and recalled as Track Presets! Elegantly simple, powerful, efficient. That's the beauty of Folder Tracks!

### Folder Tracks for Audio Post

If you're in the world of audio post, you stand to reap enormous benefits using Folder Tracks in your sessions. By their very nature, audio post sessions tend to get large rather quickly. Using Folder Tracks in Pro Tools | Ultimate, an audio post user can easily build a scene by grouping related tracks together and manage functions such as signal flow, mutes, and sends, all through a routing folder. Also available in Pro Tools | Ultimate is the ability to navigate a large session easily by consolidating numerous tracks in the mix and edit windows. Audio post users can organize different types of tracks including scenes, sound design, dialogue, and any other audio elements, logically, according to the user's desire.



Tracks comes into play.

Folder Tracks allows Pro Tools users the ability to take command of their sessions by organizing tracks into visual, collapsible folders. This ability creates a more streamlined, organized arrangement on screen, helping to remove the distraction that having to scroll through numerous tracks can bring. Folder Tracks enhances session management to new heights.

signals to be routed through the folder for stem mix workflows. All Aux track functions, including inserts, sends, and automation are available on Routing Folders. Optionally, selected tracks can be automatically routed when moved into a new Routing Folder.

- **Editing:** Edit selections made on folders are propagated to their member tracks, allowing one to easi-



## RCF LAUNCHES NEW AND UPDATED PRODUCTS AT NAMM 2020

### Desktop Digital Mixer: M 20X Series

Package includes 16 preamps, multiple recording options and intuitive GUI

Based on feedback received, RCF has now developed a complete, versatile range of four further M



RCF M 20X



RCF M 20R

series mixers with added functionality—the **M 20X**, **M 20R**, **M 20XD**, **M 20 RD**—from the ground up. The DSP-rich consoles are fully recallable, with 11 motorized faders and 16 remote controlled preamps contained in a compact, ruggedly constructed chassis.

The new M 20 series features 20 input channels with 16 high quality Mic preamps, with eight XLR and eight Combo inputs, two TRS Inputs, a Stereo Input on Mini Jack. There are 10 Output channels, with eight XLR and two TRS as well as two Main output XLR's. All outputs are routable.

The rear panel contains AES-EBU stereo output, USB audio 24x24 multi-channel interfaces, and LAN port to connect external access point for wireless remote control. There is a 5-inch capacitive high contrast touch screen with five encoders, for control of all the mixer's capabilities.

In addition, there are four Function buttons that recall the main pages on the screen and eight programmable User Keys. The motorized faders include 10 for Inputs/Outputs, and

one for the main master mix. There are four fader layers (Input 1-10, Input 11-20, four FX return and six Custom faders, while the fourth is dedicated to the 10 MIX outputs).

All channels contain hi-pass, gate, 4-band parametric EQ, compressor (ch 1-16) and gate, with four internal studio-quality Z.CORE FX engines.

The other key features of these M 20 mixers are three options for various multi-track real time recording and playback, with 20 tracks on SD card, in addition to a 24 x 24 channel USB 2.0 interface and stereo recording and playback on a USB key.

Of the mixer designations, the M20 X is the standard device, while the M 20 XD adds a Dante interface for Audio over IP networking. There are 3U rack versions of each without the faders (M20 R and M20 RD) offering the same functionality and remote-control capabilities.

The M20 X represents the first time RCF has produced a complete digital mixer with motorized faders, and with its compact form factor will appeal to rental companies, musicians, as a conference system or sub-mixer for larger installations.

The next development will be an extended Control App for both iOS and Android. Via the Attach function users will have access to a larger touch surface and expanded screen to enhance the mixing experience.

### F 24XR Digital Mixer Completes F Series

Drawing on the heritage of the widely-acclaimed analog E series, RCF's

new generation analog F series initially raised the stakes, offering high sound quality through a choice of four formats, ranging from six channels up to 16, all devices packed with effects, housed in a sturdy metal frame.

Now it has gone bigger still, completing the F series with the launch of the **F 24XR**, boasting an unprecedented number of inputs and preamps.

The new mixer features 18 mic preamps (eight channels more than the F 16XR), 16 line inputs, four stereo inputs, two stereo bus outputs, and six compressors. It contains 16 multi-FX presets, single control compressor and is supplied with USB interface for stereo recording, 3-band EQ with selectable frequency and 4 Aux sends (one available for the internal FX engine).

In common with other models in the series, the F 24XR boasts the same rugged construction, metal chassis and plastic side cheeks for portability.

### AYRA Pro Studio Range - More Power and FIRPHASE

RCF has announced a new complete line of AYRA near-field studio monitors, which has been designated the AYRA PRO. This now replaces the existing AYRAs.

The new range includes four models—three 2-way speakers and one woofer, equipped with new compo-



RCF AYRA PRO10 SUB

nents. The full range PRO5 (5"), PRO6 (6") and PRO8 (8") are joined by the PRO10SUB (10") subwoofer.

The main feature of these monitors is the high power of the Class-D amplification — respectively 100W, 120W, 140W for the 8", and 300W for the subwoofer — almost double that of its competitors.

All monitors have DSP on board and the FIRPHASE algorithm is likewise loaded as standard — the first monitor in its class to install this — to ensure 0° linear phase for time-aligned sound emission of the entire spectrum. This feature provides detail in the reference sound, with a real panorama of the stereo sound field, where the phantom center is perfectly perceivable.

In addition to professional stereo or multichannel use, the new AYRA PRO range can be used in high-end AV systems or hi-fi devices.

### MC-1

RCF has introduced the MC-1 Monitor Controller, designed to manage two couples of stereo monitors. This features two stereo inputs on combo connectors (TRS+XLR) on Input A and TRS Jack and Mini-Jack on Input B, as well as two pairs of XLR for output. Also featured is a DIM (Mute) button, reducing the sound by -20dB, a mono switch, and a central generous machined main volume control. Being passive, with no external power needed, it has no colorations and is inherently transparent from distortions.



RCF AYRA PRO 5



RCF F 24XR Digital Mixer



RCF MC-1 Monitor Controller



## RODE INTRODUCES NT-USB MINI STUDIO-QUALITY MICROPHONE

The **NT-USB Mini** microphone offers studio-quality recording direct to a computer or tablet. Designed to deliver crystal-clear, professional-quality audio, it is perfect for gamers, podcasters, musicians, streamers, and content creators.

### Simplified Studio Sound

The NT-USB Mini provides pristine sound quality in a compact, easy-to-use USB microphone. Featuring a high-quality condenser capsule with RF shielding and capsule isolation, it delivers professional-sounding audio in any application, from recording vocals and instruments, to podcasting and voiceovers, to gaming and live streaming. An in-built pop filter reduces plosives and its pickup pattern has been optimized to reduce extraneous noise

like room reverberation, air conditioning, and traffic.

With a class-compliant USB output, the NT-USB Mini works seamlessly with a computer or a tablet. No drivers or software is needed, and no external power is required to operate it. It works seamlessly with any recording software or streaming app, and studio-quality 24-bit, 48kHz A/D conversion ensures extremely low distortion and very high dynamic range, delivering incredible audio every time.

The NT-USB Mini features a studio-grade headphone amplifier and 3.5mm headphone output, complete with precision volume control, allowing easy monitoring. There is also a switchable zero-latency monitoring mode

for eliminating distracting echo when tracking vocals or recording instruments.

### Compact and Flexible

The NT-USB Mini has a magnetic desk stand that provides a sturdy base for reducing noise from knocks and bumps and is easily removable, allowing the mic to be detached and placed on a studio arm or mic stand. The integrated 360-degree swing mount allows to position the mic upright, on an angle, sideways or upside down.

The NT-USB Mini is 89mm wide and 141mm tall, compact, taking up only a fraction of the desktop or home studio setup. Hard-wearing steel and reinforced nylon resin construction ensure the NT-USB Mini is ready to take on



the rigors of recording anywhere and everywhere.

## WAVES ANNOUNCES MUSIC MAKER ACCESS, A NEW SUBSCRIPTION PLAN

**Waves Audio**, has announced **Waves Music Maker Access**, its new, super-affordable plugin subscription plan.

Waves Music Maker Access offers monthly or annual subscriptions for Waves' best-selling, award-winning plugin bundles Silver, Gold, and Platinum. These bundles include the most popular pro-quality plugin bundles in the music and audio



**WAVES  
MUSIC MAKER  
ACCESS**

industry, used by millions of music makers, from home producers to GRAMMY winners.

Waves Music Maker Access subscrip-

tions plans start from just \$6.99/month, and all plans begin with a 1 Month free trial. Subscribers also receive unlimited lifetime plugin updates and premium customer service. Subscribers can cancel any time, no strings attached.

In addition, subscribers to Gold or Platinum are eligible to choose a bonus Custom 5-Pack subscription for just an extra \$7.99/month. Custom 5-Pack subscribers can choose five extra plugins from the massive Waves catalog

(including popular plugins such as Waves Tune Real-Time, Vocal Rider, SSL, and many more), to create their own custom subscription bundle.

With Waves Music Maker Access, every music producer, novice or pro, can now afford the award-winning, gold-standard plugins used by countless GRAMMY-winning producers, mixers and musicians in chart-topping sessions for Billie Eilish, Beyoncé, Kendrick Lamar, Drake, Taylor Swift and countless more.

## PRESONUS RELEASES THE NEXT ADVANCEMENT IN ITS AVB ECOSYSTEM

**PreSonus** has released its **Ecosystem 3.0** update for StudioLive Series III ecosystem products. An early adopter of AVB, PreSonus continues to be on the cutting edge of advancing reliable, consistent network performance while moving closer to full interoperability with other leaders in AVB development.

The newest update builds on many of the advantages that make AVB the most robust audio network option for pro audio. Among the many improvements, this update strengthens PreSonus Ecosystem device connection and stream routing to create the most configurable audio networking environment in its class. PreSonus AVB Ecosystem networks can be configured in complex star and ring configurations that include dozens of StudioLive mixers, NSB stage boxes, SW5E switches, and EarMix 16M personal monitor mixers. With the

newly added AVB Auto-connect, any PreSonus AVB Ecosystem device will reconnect its stream routing after being power cycled or temporarily disconnected from the network making it extremely reliable in complex installations or touring rigs.

In addition to an update to Universal

Control to support the Ecosystem 3.0 release, the following products require firmware updates for full compatibility and improved network performance: StudioLive Series III mixers (64S, 32S, 32SX, 32SC, 32, 24, 16, 32R, 24R, and 16R), NSB stage boxes (NSB 16.8, NSB 8.8), EarMix 16M personal monitor

mixer, and SW5E AVB switch.

It is highly recommended that all StudioLive Series III Ecosystem customers take advantage of this free update. The new Ecosystem 3.0 firmware is available to registered StudioLive Series III Ecosystem product owners in their My PreSonus account at [my.presonus.com](http://my.presonus.com).





## YAMAHA LAUNCHES NEW POWERED MONITOR SPEAKERS FOR 50TH ANNIVERSARY

It has been 15 years since **Yamaha** introduced the HS series of powered studio monitors to the market. Since that time, the HS series has become a favorite for use in near-field applications for both professional and home studio environments. To commemorate the 50th Anniversary of **Yamaha Pro Audio** the company announced the special edition **HS MP models, HS5 MP, HS7 MP, and HS8 MP.**



Yamaha Pro Audio has a history of innovation that goes back to 1969. Starting with the release of the VA120 vocal amp systems, the company has continually expanded their pro audio offerings to service a wide range of applications includ-

ing broadcast studios to commercial spaces, resulting in generations of class-leading mixing consoles, power amplifiers, speakers and signal processors.

For Yamaha, studio monitors had the most significant pop culture impact on this fifty-year history. Starting with the NS10M STUDIO in 1977, Yamaha monitors essentially defined the look and the sound preferred by engineers in studios around the globe. In 1998 they released

ical advancements in order to meet the customers ever evolving needs.

Yamaha has always insisted on complete fidelity to the original sound and the ability to reproduce the subtle changes of tone and position in the mix, and these principles are exemplified in the HS series that appeared in 2005 with its bright white woofer cones. As high-bit and high-sampling-rate continue as trends in the field of music production, leading to an increasing need

studio monitor design, and carefully rethinking every element, Yamaha announced the next-generation HS series which added yet more polish to the accuracy of these speakers. Offered also as the HS-I, Yamaha equipped the enclosure with rigging points and the capability of using speaker brackets that allow mounting on a wall, ceiling, or baton mount for improved convenience of installation in a commercial production studio or in the sound room of a hall. With the expanded assortment and options of the current HS Series, the monitors now meet the demanding needs of a greater number of customers' sonic and aesthetic needs.

2019 Yamaha marked the 50th Anniversary of the Pro Audio division by offering a special limited-edition model: the HS MP models. Maintaining the same rigorous design principles that have guided the Yamaha design legacy, the HS MP ships in a paired carton adorned with a MP (Matched Pair) sticker, including speakers with matching serial numbers and a special production process utilizing specially selected parts.

the MSP5 powered studio monitor to expand into more critical listening environments where even more faithful reproduction of the original sound was required. From 2000 to 2008, this model expanded into the MSP/MSP Studio Series by utilizing the latest technolog-

for high-quality nearfield monitors, these speakers deliver the high-quality sound and accuracy that are ideal for the studio environment.

In 2013 fusing the know-how and cutting-edge analysis technology that was developed through many years of

## GENELEC LAUNCHES 1235A SMART ACTIVE MONITOR

**Genelec** has unveiled the **1235A Smart Active Monitor**, which fuses the sound and heritage of the iconic 1035 main monitor with high performance 96 kHz processing and the ability to adapt to any space through its tight integration with Genelec's GLM calibration software. The 1235A is therefore the perfect main monitor for large music, film and post production studios that demand high SPL, and neutral, stable imaging that can be perfectly optimized for the room's unique acoustic environment.

The new 1235A shares all the finest characteristics of its forerunner the 1035. Outstanding frequency response both on and off-axis, coupled with superb directivity, results in a very wide and stable sweet spot that can be trusted by multiple listeners within a room. With a short term SPL of 130 dB and low frequency extension down to 29 Hz, the 1235A also delivers staggering power, but its transparent uncolored performance ensures that the listener can still make accurate, reliable mix decisions even after long sessions.

The 350 litre enclosure of the 1235A

matches exactly the dimensions of the 1035, and features dual high performance 15" drivers, dual 5" midrange drivers and a low distortion 1" throat compression driver. The midrange and tweeter drivers work in conjunction with proven DCW waveguide technology to produce the outstanding directivity and smooth, consistent imaging for which the Genelec brand has become renowned. The 1235A's remote-mountable RAM XL electronics module contains power amplification, crossovers and processing, with Class D amplification delivering 2000 W, 800 W and 250 W for the LF, MF and HF drivers respectively. Input connectivity is provided via both analogue and AES/EBU digital formats – along with an AES/EBU digital output – and the updated design of the 1235 also delivers a flatter on-axis frequency response and improved noise performance than was possible with the original 1035.

Through its integration with GLM software, the 1235A can be configured, controlled and calibrated for any type of acoustic environment, allowing the user to tailor the frequency response,

level, distance delay and more, to provide an optimized listening experience. GLM allows users of any type of Genelec Smart Active Monitors to easily and swiftly create systems to suit all types of stereo, multiple stereo, multi-channel or 3D immersive audio formats.

The technology of the new 1235A is also available as a retrofittable on-site upgrade for existing owners of 1035A and B monitors. The upgrade, which includes installation of the new RAM-XL module, brand new drivers and a complete system calibration, can be completed with no structural changes and little downtime, enabling 1035 users to benefit from improved performance, greater flexibility – and many more years of reliable service from their monitors.

Genelec Managing Director **Siamak Naghian** comments: "While control room sizes are generally shrinking, there is still a clear demand from the worlds



of music, film and post for main monitors that can deliver pristine truthful performance at very high SPLs. Sitting happily between our 1234 and 1236 main monitors, we are sure that the technology of the 1235A will be warmly embraced by those building new rooms, and existing owners of vintage 1035s that now want to take advantage of all the power and flexibility that our Smart Active Monitors offer. The first pair of 1235As is already destined for Metropolis Studios in London, and we're excited about the potential for this reborn Genelec classic!"



## ROLAND HAS JUPITER RISING

Since the release of the JUPITER-4 in 1978, the name JUPITER has marked the pinnacle of Roland sound and playability.

Keeping up to its name, Roland has now launched the **JUPITER-Xm** that combines the classic Roland design and premium build quality with a powerful new synth engine.

### Self-contained, ultra-portable, idea machine

JUPITER-Xm has a universe of sounds, expanding all the time. JUPITER-Xm has an entire electronic production and performance environment that can be put under one arm.

### Classic analog to vintage digital. And beyond

JUPITER-Xm is equipped with Roland's latest sound engine, capable of morphing into legendary synths from the long history of Roland's genre-defining sounds. It's so flexible that it can reproduce the highly sought-after analog classics like the JUPITER-8, JUNO-106, and SH-101, as well as digital machines like the vintage XV-5080 and modern RD

pianos. Also onboard are the many Roland drum machines that are the foundation of electronic and dance music like the TR-808, TR-909, CR-78, and more. It's like a studio full of vintage gear, with modern capabilities and a deep synth engine to explore the unmapped sonic territory.

### Intelligent. Inspiring

JUPITER-Xm's I-Arpeggio is a next generation arpeggiator that uses artificial intelligence to not just accompany but to inspire as well. It works on each of JUPITER-Xm's five parts simultaneously, and generated patterns can be customized and even exported to DAW. These aren't canned backing tracks—they're intelligently generated beats and phrases that energize live performance and pulverize writer's block.

### Find the sweet spots

In addition to its informative display, JUPITER-Xm has an array of large, comfortable knobs, sliders, and buttons. With the dedicated effects section and quick switching between synth layers.



### The power of polyphony

JUPITER-Xm can layer up to five parts, four for synths and one for drums. Its engine can power multiple authentic Roland classics like the JX-8P or JUPITER-8 with enough polyphony to create thick layers and complex backing parts.

### Built to last. Made to play

Whether it's a personal studio, professional studio, or a touring rig, JUPITER-Xm is right at home. The high-quality, balanced connections, full-sized MIDI jacks, and multiple pedal inputs make JUPITER-Xm ready for any situation.

### Wireless Freedom

JUPITER-Xm operates for hours on batteries, can also play audio over

Bluetooth, and even controls soft synths on computers and iPad with Bluetooth MIDI.

### Portable. Playable

JUPITER-Xm strikes a perfect balance with an all-new 37-key slim keyboard that redefines what a compact keyboard can be. In JUPITER-Xm, has responsive keys and three full octaves in a space generally reserved for a lot less.

### Ever-expanding

JUPITER-Xm is part of an expandable platform so it can be updated with fresh new content as it becomes available. It can also share sounds and other contents with the full-sized JUPITER-Xm.

## MAGIX LAUNCHES ACID PRO 10

### Announces significant enhancements to the loopbased mixing tool

**MAGIX Software** has announced significant enhancements to its loop-based mixing tool for musicians with the launch of **ACID Pro 10** and the **ACID Pro 10 Suite**.

With this announcement, MAGIX is strengthening its commitment to developing the ACID Pro platform, while

staying true to its roots as a powerful, elegant, yet simple to use digital audio workstation (DAW) that complements musicians' mixing and finishing workflows. ACID Pro 10 integrates seamlessly with a number of industry-popular DAW solutions and adds unique and

innovative loop-based creations to their final mix.

MAGIX has added new professional features, instruments and effects and an all-powerful 64-bit architecture. With a new, sleek, and modern interface and its innovative loop-based compositional environment, the software retains the simple and elegant workflow.

### What's New in ACID Pro 10 and the ACID Pro 10 Suite

The team at MAGIX has improved and enhanced the ACID Pro 10 workflow experience on which musicians worldwide have come to depend. Key new features include:

**STEM MAKER 2:** Version 2 of Zynaptiq's AI-powered STEM MAKER Audio Source Separation technology delivers improved separation and higher processing speed.

**ACID Morph Pads:** ACID Morph Pads deliver a creative effect assignment tool that enables musicians to morph between a diverse range of effect presets for instant, stunning results.

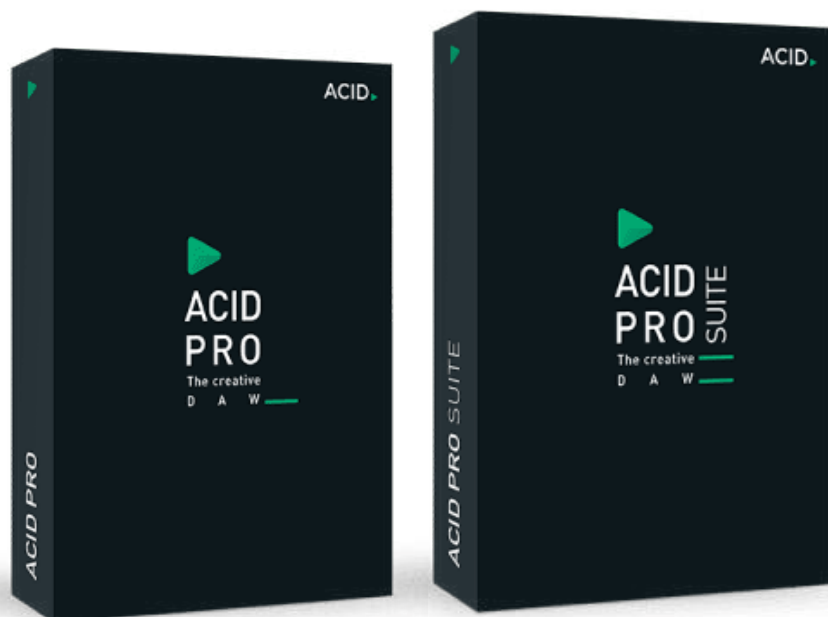
**Melodyne Essential 4:** Melodyne

enables musicians to isolate and manipulate music note-by-note by isolating tones and notes in any measure, changing pitch, duration, or volume.

**MIDI Playable Chopper with Auto Slicing:** The MIDI Playable Chopper enables musicians to split a file into beats and samples and then play them back, with no additional programming. This powerful feature allows performing with audio, playing a complete tune in real time, and recording everything as new sample events for instant remixing simple and intuitive.

### New and Exclusive in the ACID Pro 10 Suite: Xfer Records Serum

Exclusive to ACID Pro 10 Suite is the Xfer Serum synthesizer, developed with a high-quality sound and a visually-stunning workflow-oriented interface designed to make creating and editing sound fun, and without tedium. With thousands of presets created, Serum enables musicians to "go deep" when desired and create, import, edit or morph wavetables, and manipulate these on playback in real time.







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## PRESONUS LAUNCHES ERIS E7 XT

PreSonus announced the launch of the **Eris E7 XT**, making it the latest member to join the Eris family.

Eris E7 XT is designed for moderate-size and some mid-large studio spaces. With a 7-inch woofer and 1.25-inch silk dome tweeter, E7 XT's voice is significantly more powerful and richer than that of the smaller speakers in the

Eris Series. Featuring the same 140W of Class AB bi-amped power as the E8 XT, the E7 XT can deliver tight, focused bass down to 42 Hz despite the compact form factor. Moreover, just like the E8 XT and E5 XT, Eris E7 XT is equipped with PreSonus' custom Elliptically Boundary Modeled waveguide, which enables it to be clearly and accurately heard



across a wide 100 degree "sweet spot" with a focused 60° in the vertical to

minimize desk reflections and maximize performance.

Like the E8 XT and E5 XT, the E7 XT is flexible, offering acoustic tuning controls that enable it to adapt the voice to the room's response and to placement close to walls or corners, and it accepts input via XLR, TRS, and RCA connections.

## SOLID STATE LOGIC ANNOUNCES V2.3 SYSTEM T BROADCAST PRODUCTION PLATFORM

Solid State Logic (SSL) has announced the latest **V2.3 System T** broadcast production platform release, with new features for the range of **System T consoles; S500, S500m, S300 and TCR**. For live broadcast, event space audio, recording and postproduction duties, this latest release includes DAW control, Immersive audio, Dynamic Automation, Patch Manager CSV files, Access Control, Event Manager, Scene Automation, and fully featured on-board FX rack.

SSL has also announced the Net-

work I/O V4.0 update, which includes ST 2110, ST 2059-2, and ST 2022-7 support for all devices, providing standards based AoIP and Dante technology simultaneously on the same chipsets. This allows installations to leverage IP networks for both infrastructure and consoles-based audio routing workflows, without proprietary hardware TDM routers. It also adds support for TSL UMDv5 providing the audio operator with accurate information about the source currently presented on each fader.

An additional tone inject on the

channel input provides simple signal path checking, while a new per path talkback inject for channel and bus direct outputs enhances communications switching and conferencing. Cue and Auto Cue further simplify communication with outside and remote sources, greatly reducing the console operator's tasks during broadcasts with complex remote feeds.

System T's Event Manager provides graphical and user programmable macro functionality for GPIOs, Console functions, MIDI, AFV, Ember+, User Keys, Fader starts, and Scene triggers. Expanded for V2.3 this extensive list of user definable event triggers is joined by path event controls. Three controls per path provide up to 2400 additional assignable switches, controllable from the touchscreen or hardware quick controls above the faders. The events system also gains an event tally feature, driven from a GPI or specific function, user key LEDs can be externally controlled.

V2.3 brings Dante Domain Manager (DDM) login capability directly into the console software. Support for Network I/O Dante HC SRC, plus SB 32.24 and SB

16.12 SRC capability has been added to facilitate mixed sample rate or separate clock domain use. Scenarios that requires audio sharing, without exposing networks to either team can be achieved directly on the stage boxes or across a high capacity 256 channel bridge.

A graphical FFT analyser overlay is now available on the channel and bus, EQ and Filters GUI. The fixed-point-per-octave analyser has equal resolution across the entire frequency range. V2.3 brings further additions and updates to the onboard FX rack. The Dynamic EQ module benefits from a full graphical redesign and additional functionality including per band threshold trigger function.

T-SOLSA provides System T control software for standalone computers or virtualized servers. T-SOLSA is designed for use as an active remote-control, a training tool, or an off-line setup application. V2.3 adds full screen mode for each app allowing large engineering "dashboard" capabilities, or feeds into multi viewers for overview and FX rack metering.



## STEINBERG UNVEILS UR24C AUDIO INTERFACE

Steinberg has announced the immediate availability of its new audio interface, **UR24C**. It is the latest of an entire line-up of UR-C USB 3.0 interfaces that are designed for musicians, producers, and performers.

As with each UR-C interface, the UR24C provides USB Type-C (USB 3.1 Gen 1 SuperSpeed) connectivity to ensure universal compatibility with PCs and Mac computers, as well as iOS devices. It features 32-bit/192 kHz audio resolution, MIDI and delivers DSP power for using effects when monitoring audio without latency. Alongside the dspMixFx mixer that accesses the DSP effects — REV-X reverb, Channel Strip

and Guitar Amp Classics — the UR24C comes with a comprehensive software bundle: the Cubase AI music production software, the Basic FX Suite consisting of effects and sound processing tools, native versions of the DSP effects (both VST 3 and AU compatible) and the Cubasis LE music production app for the iPad.

The UR24C features two balanced Neutrik combo inputs, high-grade D-PRE microphone preamps, two TRS main outputs, four RCA line outputs, and MIDI in and out. Its specialty lies in the switchable monitor modes for headphones: DAW mode is used for producing music with a DAW, such as

Cubase or Nuendo, where the signal from output 1 or output 2 is chosen as the headphone source while allowing the user to adjust the balance of the signals from the DAW and from the UR24C's inputs; DJ mode is expected to be used for performances with DJ software and backing tracks where the signal is split so the mono master sound is output to the right side of the headphones and the mono cue sound to the left, also letting the user adjust the balance of both signals.

Steinberg's Senior Marketing Manager, **Stefan Schreiber**, commented: "With its build quality, first-class components



and 32-bit/192 kHz resolution, the whole UR-C range of interfaces sets a very high standard. The UR24C includes all these competitive advantages, but also comes with a unique and flexible concept of monitoring that works both in the studio and on stage."



## HARMAN APPOINTS ARK INFOSOLUTIONS AS NATIONWIDE MASTER DEALER FOR INDIA

### ARK Infosolutions to distribute HARMAN's products in the Recording and Broadcast vertical in India

**HARMAN Professional Solutions** has appointed **ARK Infosolutions** as its Nationwide Master Dealer for the Recording and Broadcast segment ("R&B"). The collaboration is aimed at facilitating channel penetration for HARMAN Products to meet the increasing demand in various segments such as broadcast, production, post-production studios, rental

for the PA and Retail segment for the North Indian region.

"Collaboration and partnership are essential parts of any organization when aiming for success. ARK Infosolutions' approach towards customer preference matches our own," said **Aditya Todi**, Senior Director of Sales and Marketing, HARMAN Professional Solutions, India and SAARC. "Col-

laborating with them will not only allow our partners and customers in North India to access and experience HARMAN's PA and Retail segment products, but also everyone else across India, will gain access to solutions in the R&B segment."

Headquartered in Noida, ARK is a niche player and a leading value-added distributor for technology products in India for industry segments like animation, architectural engineering and construction and more.

In India, ARK has a presence in more than 350 cities and a network of over



**Aditya Todi Senior Director - Sales & Marketing - Pro Division-Harman**



**Mohan Rawat - General Manager - ARK Infosolutions Pvt Ltd.**

250 channel partners, which will help HARMAN continue to grow in the media and entertainment vertical.

"Today, the biggest sources of opportunity are collaboration and partnership. We are excited to be partnering with HARMAN for the Indian market and will be representing them for their R&B and PA business opportunities," said **Mohan Rawat**, General Manager of ARK Infosolutions Pvt Ltd. "HARMAN offers great advantages and solutions for con-

sumers and enterprises worldwide. ARK, with its experience, resources and robust infrastructure, coupled with HARMAN's integrity, innovation and operational excellence, will inspire breakthrough performances that generate customer value and enhanced experiences. We look forward to a long and successful partnership by addressing the requirements and needs of all our valued partners and end-customers."



companies, cinematographers, musicians, film fraternity, and more. ARK will also be HARMAN's partner

## AUDIX MICROPHONES UNVEILS NEW PRODUCTS AT NAMM 2020

**Audix**, a leading US manufacturer of microphones for the professional audio markets and installed sound industry, unveiled 14 new product designs - the most in their 30+ year history - at 2020 NAMM.

Under development for several years, the products include a full line of headphones and in-ear earphones, four condenser microphones, a ribbon microphone, and a reference microphone. All products, from the capsules, grills, bodies, and circuitry are new designs and in addition to the new products, they unveiled a newly-designed company insignia.

"It's a new era for Audix," says **David Marsh**, Director of Sales at Audix. "We've got a new generation of products for a new generation of producers, musicians, sound engineers, and audiophiles."

The **headphone** line includes:

the **A140, A145, A150** and **A152**. All models are closed-back, dynamic driver, pro-sound high fidelity headphones with high-quality detachable cable options. Each model has a unique sound profile for various uses, from

studio recording and broadcasting to hi-fi listening and gaming.

The **earphone** line includes: the **A10, A10X** as well as **A10-BT** and **A10X-BT**, which include Bluetooth 5.0 enabled cables with integrated microphone.

Featuring point source phase coherent 10mm drivers and high resolution audio cables with gold-plated MMCX connectors. The A10 serves as a detailed in-ear studio monitor, while the A10X offers an extended bass frequency.

The large **diaphragm condenser** series includes: the **A131** and **A133** fixed charge condenser models, and the **A135** and **A137** true condenser models. All four models have internally shock mounted cardioid capsules. The A133 and A137 are equipped with pad and roll off switches.

The **A160** is a transformer-based, passive, bidirectional ribbon microphone with no active electronic components, and is based on the classic ribbon design and does not require phantom power.

The **A127** is a type one reference microphone with a 1/2" metal film omnidirectional capsule.





## ADAM AUDIO ANNOUNCES NEW T8V STUDIO MONITOR

**ADAM Audio** has announced the all new **T8V studio monitor**, the latest addition to its award-winning T-Series line of professional studio monitors which offer renowned ADAM Audio performance, quality and reliability at a value price point. The T8V features an 8-inch woofer paired with powerful amplification and its power and lower bass extension make it an ideal choice for project and home studios, clients who work in bass-heavy music genres such as hip hop, dance, ambient, dub and EDM, and those who work in non-electronic genres like funk, metal, blues and pop.

The new T8V offers performance and specifications unprecedented in its

price class, with a frequency response that reaches down 33 Hz and the ability to project an impressive SPL of 118 dB per pair.

ADAM Audio's acclaimed T-Series line of studio monitors was launched in 2018 with the T5V 5-inch woofer and T7V 7-inch woofer models, followed in 2019 by the T10S subwoofer. Just like the previous two monitors in the T-Series lineup, the T8V makes use of ADAM Audio technology developed for the company's high end flagship S series available at a very affordable price point.

Its U-ART tweeter (Unique Accelerated Ribbon Tweeter) is mated to a sophisticated waveguide with the same

dispersion-control attributes as the HPS waveguide in the S Series. The Class D amplifiers for tweeter and woofer offer ample power for the 8-inch woofer, delivering 20 W and 70 W respectively and providing 118 dB max SPL per pair.

All T Series models feature a beveled cabinet design, rear-firing bass reflex port, built-in DSP-controlled driver crossovers and equalization, and multi-way analog connections; and are compatible with the ADAM Audio T10S subwoofer.

"ADAM Audio is very well-known throughout the world for its high performance, precision studio monitors," says **Christian Hellinger**, ADAM Audio Managing Director. "The T-Series offers



renowned ADAM Audio monitor quality and precision to an even broader range of customers, and we are very pleased to be able to add the 8-inch woofer T8V to the family."

## EVE AUDIO ANNOUNCES SC3070 3-WAY TRI-AMPED NEAR/MID FIELD MONITORS

Designed and assembled in Berlin, Germany, the **SC3070** is a high-resolution, tri-amplified near/mid field monitor optimized for precise midrange and powerful bass response. This 3-way monitor achieves the outstanding mid-range reproduction of its larger sibling SC407's mid-high section with exceptional balance and low distortion over the entire frequency range, but in a much more compact cabinet. The SC3070 is the ideal solution for recording, mastering and home studios where the complete skill set of a fully-fledged 3-way system is required, but where space is at a premium.

The SC3070 was launched at NAMM 2020 and features **EVE Audio's RS3 Air Motion Transformer** to deliver high-end frequency production. A four inch

glass-fibre honeycomb membrane woofer designed to produce reliable midrange frequencies with the utmost detail. A seven inch woofer driver rounds out the SC3070 by providing precise and powerful low frequencies. The cabinet houses a bevelled ultra-stiff front plate to reduce undesirable resonances.

The bass and mid-range drivers are



the same SilverCone found in existing models from EVE Audio that have proven their worth in top studios all over the world. These drivers work with a low-distortion copper-cap magnet system, which significantly reduces the distortion factor.

As with all monitors from EVE Audio, the SC3070 features high-resolution DSP electronics. A high-quality analog/digital converter from BurrBrown (24bit/192kHz) converts the analog input signal supplied via RCA or XLR.

The DSP ensures latency-free filtering and simultaneously protects the entire frequency range from overload. When switched on, the volume of the SC3070 increases slowly to leave enough time to reduce the source volume if the input signal is too loud.

Three high-quality Class D amplifiers complete the system and deliver enough power to the demands of modern music production. Selected volume and/or filter settings can be independently fixed with DIP-switches that are positioned on the rear of the amplifier to prevent unauthorized or unintentional adjustments. The rear-firing bass reflex channel is designed with low flow noise and reinforces the SC3070's powerful and precise bass reproduction.

## SOUND DEVICES ANNOUNCES V2.90 FOR A10 DIGITAL WIRELESS SYSTEM

**Sound Devices** has announced firmware **version 2.90** for the Audio Ltd A10 Digital Wireless System and its companion Mic2Wav and A10-TX Remote applications. Firmware 2.90 features key improvements for both production and post-production. Most notably, the companion application Mic2Wav introduces the "Conform to CSV" feature, which converts audio files recorded on an A10-TX to WAV files using a CSV sound report from a MixPre Series, 6-Series, or 8-Series mixer-recorder.

"The 'Conform to CSV' feature



saves a considerable amount of time in post-production by extracting only relevant bits of a MIC file based on what was captured on the production's mixer-recorder. Important metadata like Scene, Take, Tape, and more is copied from the sound report to the converted WAV file," said **Nicholas Vandrush**, Director of

Marketing.

Additionally, the A10-RX now features expanded RF indication: the A10-RX's red LED illuminates and the screen displays 'RF Overload' when the incoming signal is too strong. Reducing RF power on the transmitter, increasing the distance between TX and RX, or applying attenuation to the antenna system in use will correct the overload.

The A10-TX transmitter and the A10-TX Remote companion application also received performance improvements.





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# Shankar and Siddharth Mahadevan's LAMBODARA STUDIOS – Leaves you Breathless



*Auroville based leading acoustic consultancy & audio video system design firm **Sound Wizard** was tasked with designing acclaimed singer, composer and music director **Shankar Mahadevan's** new studio. In this article, Sound Wizard gives **PT** the lowdown. Watch out for the July-August issue for Studio Pics.*

Situated in Navi Mumbai, **Shankar and Siddharth Mahadevan's** stunning new facility **Lambodara Studios** has been built to the latest international acoustic standards and interior design trends. Within the stylish "Bollywood-jazz" interiors of this first floor studio, form follows function, with no compromise to either. The attention to detail in acoustic and interior design has resulted in a comforting and pleasing mixing and recording environment that fosters and encourages creativity at the highest level. The genesis of Lambodara Studios began in 2019 with a WhatsApp message from Siddharth Mahadevan, after his visit to *Island City Studios* (a **Sound Wizard** project) in Khar West, Mumbai; "Just visited Island City Studios a couple of days ago... NICE WORK! Listen, I'm building my own studio here in Mumbai and I want you guys to design it."

## The Design Process

The civil shell of the building had already been constructed with this purpose in mind, so the Sound Wizard team began the design process by working on possible layouts to accommodate a main control room, live recording area, reception, machine rack, bathrooms and an administrative area in the space. The critical task of taking the original civil blueprints of the building, cross checking and correcting them with precise on-site measurements fell to Sound Wizard's architect **Mehul Kumar**. Along with acoustician **Didier Weiss**, Mehul worked on the complex puzzle of fitting all the aforementioned areas into the 100m<sup>2</sup> (1075ft<sup>2</sup>) shell. Once a tentative layout was approved by the client, Sound Wizard began detailed interior acoustics, isolation and system design for the space.



The usual challenges of designing a professional studio in Mumbai presented themselves early on, including a low, flat ceiling and parallel walls. Equally important, Sound Wizard needed to find space to accommodate a complicated ducted air conditioning system that would satisfy cooling requirements in Mumbai while remaining virtually silent. After much deliberation, Sound Wizard formulated an unorthodox yet simple solution to combat the space constraints. The control room and the recording space were placed side by side, as opposed to the more usual front-to-back orientation. The reward for this clever thinking was threefold; it opened up extra floor space, created plenty of visual contact between the recording room and control room, and freed up space on the front baffle-wall between the main studio monitor loudspeakers for a large video display.

Since the client had complete faith in the acoustic design prowess of Sound Wizard, they were allowed to put together a coherent design, un-spoilt by the common practice of "design by committee" that usually results in a compromised outcome. Succinctly put by Didier Weiss, "When a concept is simple, then the outcome is often efficient and harmonious."

## Design Features

As with any Sound Wizard project, high quality acoustic design aided by EASE simulation was the key to unlocking the full potential of the space. Transparency is the main goal of any recording studio design, and Lambodara Studios has multiple acoustic features that help it achieve this goal. The front baffle wall of the control room acts as a waveguide to redirect the energy from the flush-mounted Quested Q412D

posite wall (to the glazing) to simulate the acoustic performance of glazing, resulting in a perfect stereo image at the listening position. A combination of custom-designed diaphragmatic absorbers as well as ceiling and side-wall absorbers have been used to eliminate modal issues (standing waves) and create a flat reverberation-time curve at all frequencies. Both the control room and recording area have also been designed within "floating" shells, "room within a room" designs that reduce sound transmission through structural vibration.

The custom designed honeycomb diffusers in the control room are a fantastic example of collaboration between client, consultant and interior designer. While Sound Wizard had initially planned to use QRD (Quadratic Residue Diffuser) or slat diffusers, Siddharth Mahadevan preferred a complex honeycomb diffuser instead. Using software simulation to determine the form and dimensions required to diffuse sound at a targeted frequency range, Sound Wizard was able to provide interior designer **Kiran Shetty** with the framework to turn a functional acoustical device into an eye-catching interior and lighting design element. Acoustically, the device achieves its target of scattering mid and high frequencies to minimise comb filtering at the listening position while also creating a more pleasant and "live" listening environment.

## HVAC System

An often overlooked and under-appreciated feature of a professional recording studio is the heating, ventilation and air conditioning (HVAC) system design. Lambodara Studios is divided into two independent air conditioning zones. The most critical area, the recording room, meets an NC15 noise

## Lambodara Studios Technical Specification

**Studio size:** 100m<sup>2</sup> (1075ft<sup>2</sup>)  
**Control room:** 33m<sup>2</sup>. (355ft<sup>2</sup>)  
**Recording space:** 30m<sup>2</sup>. (300ft<sup>2</sup>)

**Main monitoring:** Quested Q412D  
**Subwoofers:** Quested QSB118  
**Near field:** Barefoot MicroMain 26

**Mixing console:** SSL AWS 948  
**Software:** AVID ProTools & Logic Pro X  
**Pre-amp:** Neve 4081, Lexicon PCM & Chandler Limited TG12411  
**Interface:** Universal Audio Apollo X16 & Universal Audio Teletronix LA-2A  
**Equaliser:** Manley Massive Passive  
**Compressors:** Universal Audio UAD 1176, Dangerous Music & API 2500

**Microphones:** Neumann U87, Brawner MV1 & AKG C12VR

**Cabling:** Sommer Cable

**Acoustic design:** SOUND WIZARD; [www.soundwizard.net](http://www.soundwizard.net)

duct work, which was further developed and adapted by the HVAC vendor in their final system design.

## Implementation

Translating a consultant's vision into reality is the most critical part of the process, and a failure to pay attention to detail at this stage results in a massive waste of time and money. Especially when it comes to sound isolation, any mistakes made during the construction of a "floating" shell results in issues that are difficult and often impossible to rectify. The smallest of leaks in a shell can compromise its entire function, resulting in wasted material, space, time and money.

The construction team **Ashok Interiors** was recruited to implement the sound isolation and acoustic interior

had to follow up with multiple on-site meetings to ensure a seamless build-out. It always helps to have a design team with plenty of local experience and a client willing to understand that consultant site visits save time and money in the end because fewer mistakes are made. The design team can then ensure quality control and clearly answer questions to the on-site craftsmen, taking local methods and materials into account.

Lambodara Studios is a first-class example of how one can morph square block city construction into an excellent professional music facility without going overboard. Understanding the importance of acoustics and a commitment to detail are key elements that guarantee a speedy and cost effective studio project. Thanks to a fantastic partnership between client and consultant, Lambodara Studios sets a new benchmark in India as a modern, state-of-the-art recording studio that will be relevant in the Indian music scene for years to come.

## Sign-off

Completing the circle, this project started with an enthusiastic WhatsApp, and befittingly also comes to a successful completion with a message of appreciation.

"Hi Didier, ... just wanted to tell you that this is by far the best studio I have heard and am so thankful to you and your team for doing such a fabulous job! We really feel proud having this studio of serious quality and aesthetics! Thanks once again and hope to see you sometime soon!!"

Shankar Mahadevan (client sign-off WhatsApp - March 2020)



**Shankar Mahadevan seen here with his sons Shivam (L) and Siddharth (R) at their new studio Lambodara**



**The Main Control Room: Didier Weiss doing the final system and room optimization of the powerful baffle mounted Quested studio monitoring**

monitors QSB118 subwoofers. The glazing between the recording room and control room (for visual access) is built up of 3 panes and has been angled vertically within the control room to prevent first reflections from interfering with the direct sound and colouring the signal. To create symmetry in the room, mirrors have been placed on the op-

level target. The (slightly) less critical environment, the control room, meets an NC20 noise level target. Having two independent AC setups lowers the machine noise levels, mitigates sound transmission between separate spaces and also offers better control over energy consumption. Sound Wizard devised the concept layout and detailing for the

design had previously worked on Island City Studios in Mumbai, the studio that brought Sound Wizard to the notice of Mahadevan. Although using skilled labourers with some experience installing acoustical materials helped, it is always challenging for a construction team to get to grips with complex technical drawings. Sound Wizard



# Bose Professional assures an **IMMERSIVE SOUNDSCAPE** at Sardar Patel Stadium – the largest cricket stadium in the world

***1,10,000 spectators to enjoy Bose sound at Motera Stadium; ArenaMatch range of loudspeakers deployed as main PA***

US President Donald Trump and First Lady Melania Trump were welcomed by Prime Minister Narendra Modi as they arrived for the “Namaste Trump” event on 24 Feb 2020, held at the Sardar Patel Stadium

in Motera, Ahmedabad, Gujarat, which is now the world’s largest stadium, surpassing Australia’s Melbourne Cricket Ground.

When the stadium officially re-open’s for international cricket matches, reportedly sometime in March, spectators will

be treated to a pristine sound experience, courtesy, **Bose Professional Audio**.

Constructed by Larson and Toubro (L&T) and spread over 63 acres with a seating capacity of 1,10,000 people; the colossal stadium now boasts an immersive soundscape thanks to its

new comprehensive audio system from Bose Professional comprising a total of 146 units of the globally acclaimed ArenaMatch series. The system was primarily acquired to efficiently and effectively meet the venue’s increased aural demands



and it creates a record of sorts for Bose Professional as a brand in India, as it now stands as the largest comprehensive sound system deployment from Bose Professional in a permanent installation in the country.

**"Vibhor Khanna**, Country Manager – India & SAARC, Bose Professional, commented: "We are extremely happy with the sound system installation at the Sardar Patel Stadium in Motera, and we are proud and honored to have deployed this system in light of the historical significance of the venue. This is the largest stadium in the world and I consider this installation as one of the feathers in the Bose cap. This is an amazing opportunity to showcase our latest ArenaMatch speakers from the DeltaQ family of arrays and the whole company is energised by this contract, which is among one of our largest permanent installations in India to date."

Reports affirm that the ArenaMatch system from Bose Professional was chosen as the preferred system for the venue after an on-site simultaneous live demonstration was conducted featuring three of the most reputed loudspeaker OEMs available in the country.

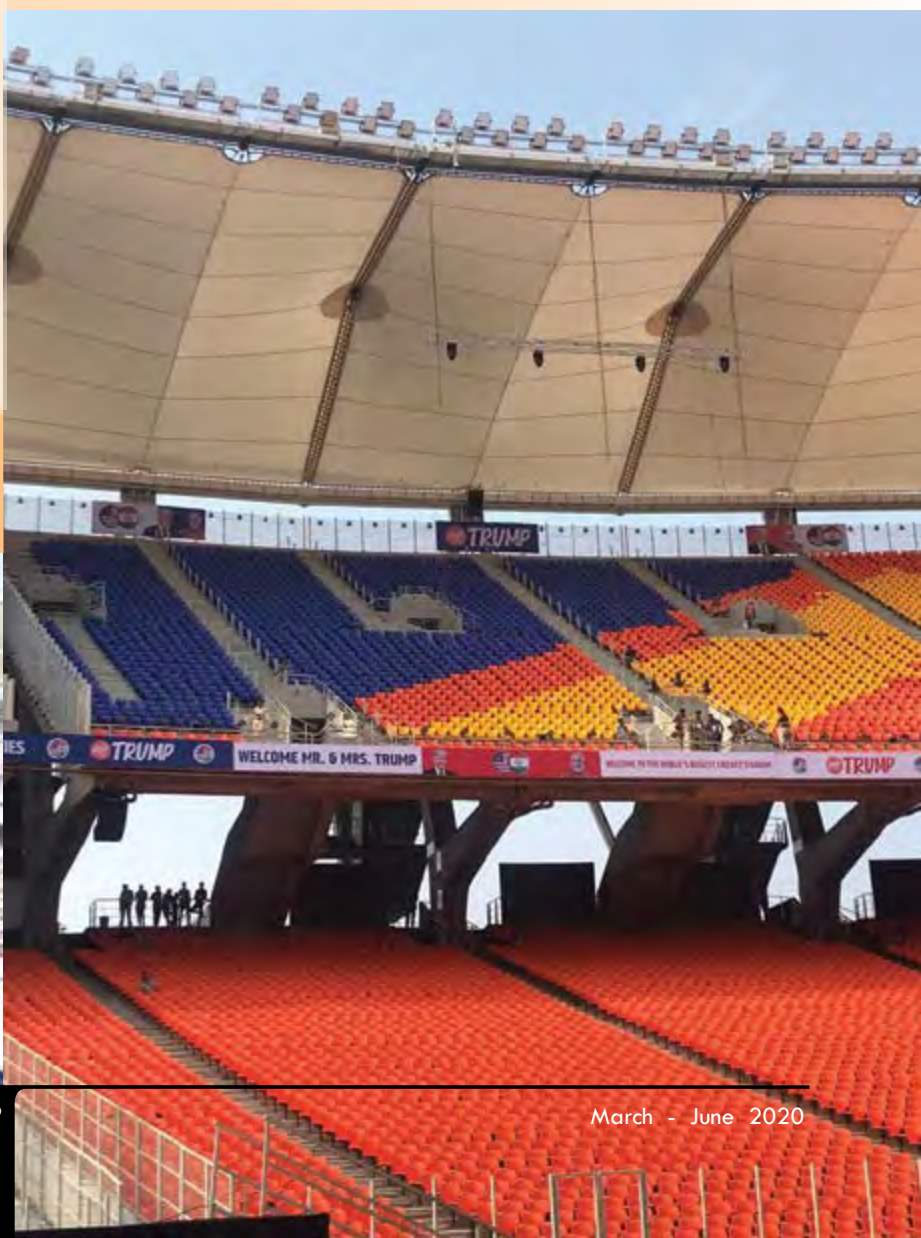
"The Bose Professional ArenaMatch line of loudspeakers was launched during ISE in 2019 to coincide with the unveiling of the ArenaMatch installation at Philips Stadion in Netherlands, which provided consultants, SIs and end users an opportunity to witness the system's sound quality, consistency, vocal clarity and flexibility in outdoor venues such as sports stadiums, arenas and outdoor entertainment centers. After our return from ISE, we approached the Gujarat Cricket Association and L&T who was the master contractor, and it was suggested to have an on-site shootout between three of the industry's most

reputed PA brands. After evaluating the performance on various parameters, the authorities hailed Bose' ArenaMatch system as the clear winner, and this is how we bagged this prestigious project," says Vibhor, as he adds, "Our systems are perfectly suited to the demands of this world-class sporting arena,".

It is revealed, however, that since the ArenaMatch system had just recently debuted at the time, the brand had to make special arrangements to ensure that the demo was executed perfectly as planned. **Navin Datta**, Engineering Head- Bose Corporation shares, "At the time of the shootout, the company had just recently launched the product, so it wasn't even available for demo. We had to request the head office to support us with the demo units, which were then shipped to India just in time for the shootout, and the outcome of that promptly arranged but wonderful demo, actually almost closed the deal for us."

Intimately involved in the planning of the sound system deployment, Bose Professional was instrumental in guiding the GCA in setting up a world-class audio system. "The design of the sound system had some inherent challenges of meeting the very high SPL levels required for stadium application; while ensuring acceptable STi levels, given the high ambient noise levels of such large arenas" says Datta, as he shares that the main challenges in commissioning the system involved delivering crystal clear sound experience at every seat while maintaining the 90 dB SPL norm and assuring an STi of 0.5 or above from already defined speaker mounting locations.

Various models of the Bose ArenaMatch have been deployed throughout the facility to precisely address



**The Bose team that spearheaded the install. From l-r: Pankaj K Singh – Design Engineer, Navin Datta - Engineering Head, Bose Professional India and Vibhor Khanna - Country Manager, India and SAARC**







**Various models of the Bose ArenaMatch have been deployed throughout the facility to precisely address these aural requisites - with the three sections in the venue i.e. The Lower Bowl, The Upper Bowl and VIP area featuring multiple units of the AM10, AM20 and AM40 boxes in meticulously planned specific configurations.**

these aural requisites - with the three sections in the venue i.e. The Lower Bowl, The Upper Bowl and VIP area featuring multiple units of the AM10, AM20 and AM40 boxes in meticulously planned specific configurations.

While the Lower Bowl area features 16 arrays of four units each of the AM10, AM20 and AM40; the Upper Bowl area

sports a total of 19 such arrays. Bose products are also used in three of the VVIP sections and the Banquet area within the VIP section.

With the Panaray 402 featuring a full-range-driver array and being fully outdoor rated, a total of 11 units have been installed in the VIP section and 10 units in the VVIP section, eliminating

the need for tweeters and crossovers, to provide unsurpassed reliability and vocal clarity. Furthermore, 10 units of the Panaray 402 and 6 units of AM40 have been deployed as point source to cover the banquet area within the VIP section.

The Articulated Array design, with wide 120° x 60° coverage, reduces the number of required loudspeakers, while the 73-Hz low- frequency range reduces the need for subwoofers, providing a cost-effective solution.

As Navin affirms "The system, as a cohesive unit, delivers clearly audible commentary and voice announcements to every seat in the venue."

To deliver maximum power till the speaker end, Bose had to customize different types of speaker 'cable thickness' for different array positions, depending on the circuit lengths. The entire system is controlled through four stra-

tegically located control rooms, all connected over Dante. Navin shares, "We used Bose EX-1280 C processor, which is a Dante enabled (64X64) DSP. It has on-board 'Logic/Control' to interface with third party devices, and the same is used to interface with 'Fire Evac' system of the BOH areas. Being Dante enabled, it can communicate to various amplifiers installed across four control rooms, seamlessly!"

With affirmations of the system creating quite the positive impression, Vibhor concludes, "This design provides seamless coverage, volume and clarity for fans in all areas of the stadium. This major installation illustrates the depth and clarity of our high-performance speaker systems and we look forward to further installations in similar venues in the future." ■■

## The ART and CRAFT of Sound Design Interview... (Continued from page 32)

**You have done a lot of movies, as well as documentary sports films like Sachin. Are there quantitative or qualitative differences in terms of mixing such movies versus a mainstream commercial movie?**

"Sachin" is a docu-drama, which people know about because it was released in theaters. Sachin's childhood sequence was the drama or the fictional part of the movie. For Sachin's interviews, we used the sounds of his home videos, we used recordings of his matches, and even painstakingly sourced commentaries from Pakistan. We also had to obviously insert particular sounds. For instance, I wanted an open stadium sound so I got a hundred dubbing artists into Bhavan's college ground, shouting the 'trade-mark' "Sachin...Sachin..." These things made an impact and induced drama into the documentary. However, for a real documentary, it is most important that we reproduce the real sound. If I am out on the street for an interview with a character, I cannot bypass the sounds on the street and the realism of the street. I cannot dub that particular character's voice because the spontaneity of the voice cannot be re-created. In a documentary, you cannot take certain liberties, which you would otherwise in a fiction film. If you are adding music to a documentary, you need to consider the subject of the documentary. I worked on one very interesting documentary about some tribal people in a certain region of Odisha. It was about the obsession with hockey among the youth of the villages of that region. Their biggest ambition was to join the Indian Hockey team. At one point there were actually four players in the Indian Hockey team from that particular village. Hockey matches in that region

are as popular as league cricket matches in our country. It's like a huge festival and if there are festivals, there are rich tribal dances, music and drums... this gave us a rich music track. The biggest challenge in documentaries is the budget. Not everyone is lucky to have budgets like National Geographic or docu - features like "Sachin a Billion Dreams..."

A typical Bollywood feature film on the other hand has budgets, with budget comes scale and finesse. We also have the luxury to create and design sounds, music, graphics etc. the way we want. That is a different level of excitement. We take liberties like creating interesting and usually 'larger than life' effects or stylization to create dramatic impacts.

**Do you think sound designers are given enough recognition and credit in our country?**

Of late, I believe that people are beginning to understand that there is something more than music and dialogues in films and that something is sound effects. Thanks to **Resul Pookutty** for getting the Oscars; at least people know there is something called sound in cinema. Mostly people don't know what I do but they are slowly becoming conscious of the fact that there is something called sound designing and people are beginning to understand this whole concept of Sound Design. Sound is what has brought back the audience to the theatres. When they are listening to Dolby surround sound, they automatically know they are listening to good sound; it's not an alien subject anymore. I'm not expecting the common man to understand the details of photography or sound or editing, but that ignorance should not be within the industry. Many

producers and directors have no idea about sound or the role of a sound designer, so that level of ignorance within the industry is very unfortunate. I expect people who are making films to know every department. Sanjay Leela Bansali, is one of my favorite directors because he understands what you are going to do as a Composer, as a Sound Designer, as a Choreographer, as a Visual Artist; I think he is complete. If his films cost Rs 300 Cr, then that 300 Cr is visible and audible in his movies and that should be the attitude. I get very put off by people who treat sound as a small part of the movie and thankfully I don't do work with such kind of people. I automatically know that I am not going to make any kind of difference to this guy or his film. I would rather work on one good project than 10 bad projects.

**Your best work so far as a sound designer and why?**

(Laughs). When I mixed *Hum Dil De Chuke Sanam*, at that point in time, it sounded very nice. Today I would not probably mix it like that. I probably today will record and mix Devdas in a different perspective as today I am a slightly different person and our environment and tastes have changed; we have been introduced to so many new things. When I mixed those sounds they were very new, and they had a fresh vibe. The kind of sound design I did for *Parineeta* was very different from what I did for *Bajirao Mastani*, which was again a milestone. I loved *Bajirao* because it was a period film wherein you had to create a period environment for which I needed to create a particular effect. *Bajirao Peshwa* came from a very staunch Maharashtrian Brahmin family. A typical Brahmin household environment of that time would

be immersed in distinct orthodox religious sounds like, prayers, bhajans, mantras, temple bells etc. My research lead me to this place near Panchgani where Brahmins from all over Maharashtra would come and chant the Vedas and senior women singing old Marathi bhajans every year. I wanted those kinds of Vedic chants and bhajans in the film and I have used these in my soundtrack. Sanjay Leela Bansali loved these bhajans coming out of Kashibai's room'. I always have a "parallel sound script" discreetly running alongside the film. *Bajirao Mastani* was my favorite work for a period film until now. *Madras Café* is also one of my favorite films. That is when people stood up and noticed that there is something called sound design. *Madras Café* was the first film, which was mixed in Dolby Atmos in India. Uri was a very contemporary, very different war film. Both Uri and *Madras Café* had different challenges. The sounds in *Madras Café* were different from the sounds used in Uri, which was very contemporary and sophisticated. Every film has its beauty, so I cannot point out to any one favorite. Ten years down the line if someone asks me to mix a movie like Uri, I would do it differently. Nothing is permanent.

As they say in Hollywood, "You are only as good as your last project". Sound Design is a creative process and a particular method may not work for you the second time.

I have never differentiated between big or small production houses, directors, composers, technicians and artists in general. Both have rewarded me well. This year I got the National Award for Uri and I got another National Award for a short film called *Children of the Soil*. This was the first time that Audiography received two National Awards in two categories in the same year. This was proof enough.



# IN CONVERSATION WITH

## SREEJESH NAIR



*Besides being a part of the first Dolby Atmos Mix theater installation in India and the first Dolby Atmos Premiere Mix room in the world, Sreejesh Nair has been responsible for crafting the sound for major films like Bombay Velvet, Gangs of Wasseyapur - II, Agneepath, Jodha Akbar, and more. In this interview, the award winning sound engineer and re-recording mixer talks about his journey of 17 years and how the industry has changed in terms of technology and recognition given to sound engineers.*

### How did you get started as a recording engineer?

I finished my B.Tech in Mechanical engineering and went on to Chetana Studio in Trichur, Kerala to pursue a 1-year diploma in sound engineering. This was in 2002. At the time, this area of work wasn't quite known and it was a challenge for me both personally as well as financially to start off on this. I came to Mumbai and was offered a job at Gaurav Digital, (now FutureWorks) via Sreekumar, a good friend of mine. I worked there until 2012 as a mix engineer before joining AVID as an Application Specialist for Pro Audio. I still mix two films a year, a lot less compared to what I used to do before.

You have mixed some major Bollywood soundtracks, what are some of the main technical challenges you normally face. You can cite examples from your previous work.

When I started, we were running video on tapes, had multiple Hi-8s and MO (Magneto Optical) disks. FutureWorks had the first **Pro Tools** system in a film mix stage in Mumbai. There were mul-

tiple challenges, although to be honest, I was probably too young at the time to see them as challenges. Over the years, the track count has increased. The mix techniques have changed. It has evolved from being a fixed method of mixing to more radically experimental ones as well. The main challenge though for me wasn't only creative. Technically, I always felt the need to have a knowledge skill set that would make me understand why a certain fader move, plugin, EQ or

fortunate enough to be taught by many including **H. Sridhar**. This opened my thoughts to a point where I realized that the growth of an industry is not just the knowledge of one person, but also the collective knowledge itself. That lends to a creative competition, which in turn will push better quality. One of the things I remember is talking to a dear friend of mine, **Bharath Venkatesan** about a technique of mix I used during Gangs of Wasseyapur. This involved splitting the

friends of mine on three way speakers and the crossover! But the point is, by sharing ideas, even manufacturers listen to that and implement some very clever things.

### What are your go-to gear for getting the job done? Name the top 5 tech products impacting your studio?

Pro Tools. I cannot work without that. In this age of multiple DAWs and gear, I know I may come across as biased, but at the same time, even before I joined **Avid**, I felt an incredible level of comfort there. For me, mixing has to be intuitive. I am too lazy to think, do, listen, and go back. Most of the time, my techniques, or ideas are muscle memory or reflexes. And at that point, having a tool that is more like an extension to my thought process is important. I started by working on a console, so I was trained to be a fader person and not a mouse person. However, later when the track counts started increasing exponentially, the natural shift was towards a control surface. I used the **Digidesign Icon** and mostly the **S6** now. I love some plugins. **iZotope** is one in my bag of necessities.

**The challenge of mixing in Dolby Atmos was to understand why that format is as effective as it is. Once you get that, the underlying philosophy is just that of panning.**

technique is used. It was also important that I clearly understand what happens and can articulate this to a colleague. Challenges that I met weren't just technical in that sense. There was also reluctance to share or mentor. Most had an extremely closed idea of their work. I was

frequencies, planning them separately, and processing them. Bharath took that idea and helped implement a form of it in Pro Tools called the **AOS (Aux Output Stem)**. Although by no means do I take the credit for any of that! This came from a random conversation with some



So are **Cargo Cult Spanner**, **Pro Limiter**, and **Fabfilter**. When it comes to reverbs, I heavily use **Revibe** and for Atmos mixes I use the **Stratus 3D** by iZotope. My surgical and match EQ has always been **Seq-S** by Nugen Audio.

**Do you mix the music tracks featured in your sound design and do you work with music directors or music composers while designing the background score?**

Majority of the times, yes I do. While I don't involve in the score design part as I come as a film mix engineer, I do make sure I have the music engineer listen to the mix. To me, this is very important. When I started as an assistant, I remember this was nearly impossible and most of the times, they weren't allowed. My two cents on that is simple. They have lived with the score more than I have. It is only right that I get the score and the music balance to sound as good as possible with the dialog and effects at the same time. The huge tension at the time was they may change the balance, they don't know surround mix, their mixes are too bright etc. but my point was, all of that can be fixed. It is as important for them to see how their work turns out as well. This will open a path to conversation and is always mutually beneficial and at the end of the day, they are your friends. I remember during *Agneepath*, we were on an extremely tight deadline. The sound design was as heavy as the score was. I spoke to **Vijay Dayal** who was the music engineer for the film, recording **Ajay-Atul's** score. I remember very clearly how exhausted he was with so much work. One evening during the mix, I went to Yashraj and met Vijay. He was doing a mix down to get the tracks within a finite number to be delivered to me for the mix. I told him "Don't worry, just send it as is, do the best you can on the recording, don't compromise, I will balance it on my end, and then you come in one of the days after a good rest and check out the balance. There is no need for both of us to be stressed and tired!" Well, this was a very defining moment for both of us. First off, I learnt a lot on how he works, and he in turn helped smooth a lot of the musical balance. To be honest, we saved much more time and were less stressed!

**Is there a process you go through deciding how much sounds you take from an already existing library versus**

**creating entirely new sounds for a given project?**

If I sound design, I try and make sure the sounds are as authentic for the film. The sounds that sell the movie are the ambience sounds and any sound that is particular to the movie like a car or so. All of those I try and make sure are recorded for the film. Many times, we have to resort to library sounds as well. Purely because they are well catalogued, have a sound that will sell instantly (we are conditioned to certain punch sounds for example!), and the workflow is easier. But to be fair, if the sounds don't work, we do have to end up recording or sourcing it. The first view and talking with the director will help me understand how much of this has to be done and what the film requires. If we manage to present a view of the film that extends the directors vision, then we are successful.

**You have done many movies, like Uda Punjab, Bombay Velvet, Gangs of Wasseypur - II, Harry Potter and the Deathly Hallows - Part 2, Omkara, Poseidon,**

an alternate movie. The time I mixed *Gangs of Wasseypur* was probably the most challenging one I had to do. This was because, in the daytime, I was mixing *Rowdy Rathore* and at night it was *Wasseypur*! Of course the genres are different, the styles of sounds are different, the approaches are different. For example, one will have an over the top score and a very stylish sound design, while the other will be minimalistic. So, even in the conceptual stage, they are different. But the effort on both are equal. It is impossible to have one lesser than the other!

**How challenging is it to work with multi-channel systems and technologies like Dolby Atmos and Auro 3D.**

I started my career mixing in 5.1. and I have an incredible amount of respect for anyone who mixes in Mono or stereo, because that is the most challenging format to mix in! Although the majority of analog hardware, saturators, mastering equipment are all stereo and not surround. The challenge of mixing in Dolby Atmos was to understand why

shoulders of giants to be in my position, and I definitely will do all I can to make sure the next ones also get to stand on the shoulders of giants. No one needs to reinvent the wheel. There are many who are trying to make it in an industry today saturated with a lot of engineers and a lot with incredible talent. Being at the right place at the right time is very important. From my experience, there are two things that I learnt which are very important. This is a service industry. You can only make it big if you have repeat clients so make sure you treat them well. The person who makes tea for you does his 100 percent, just as the actor who portrays the role. The second important aspect is having the knowledge and the maturity to use it as a tool, because at the end of the day, the audience doesn't really care what EQ or Compressor you used. They only care about how good the experience is and for that, being knowledgeable both technically and aesthetically is important. The former you can gain by reading and interacting with engineers. Becoming familiar with technology is the first step to making it your friend. The latter you gain by practice, and practice only.

**Do you think mix engineers are given enough recognition in our country?**

This is a very difficult question to answer. The term recognition needs to be defined. Is it by the peers or by the public? Both are different measures. Initially there was a time when the mix engineers were everything. They took the call to the film, decided on the way it sounds, and what needs to be where etc. Later, this shifted to sound designers making the call in the movie. There was a time, when the mix engineer wasn't that critical as long as someone who could have a comfortable vibe would be great. Today, it has become a team work. The reason is that the final deliverable is taken care by the mix engineer while the aesthetics and the blend of all the elements is a combined effort of the designer and the mix engineer. So, in terms of recognition by peers, yes, but from the general public it is not that much. Things changed for me with a National Award. I realize that the general public respects your achievement and not necessarily your area of work, and that is because being a film mixing engineer is probably the toughest job description to put in words!

**It's important to have the knowledge and the maturity to use it as a tool, because at the end of the day, the audience doesn't really care what EQ or Compressor you used. They only care about how good the experience is and for that, being knowledgeable both technically and aesthetically is important.**

**and period movies like Jodha Akbar. Is there a quantitative or a qualitative difference in terms of mixing such movies versus a mainstream commercial Bollywood movie?**

None of the movies above are an individual effort. For example *Gangs of Wasseypur* was mixed in three studios by **Alok De**, **Sinoy Joseph** and me. *Bombay Velvet* was the first **96kHz Dolby Atmos** film in the world and the first two-man mix in India. This was mixed by **Justin Jose** and me. *Jodha Akbar* I was associating and at the same time took care of the sound effect mix and music editing. So, you see the definition of the role is very dynamic. Now, mixing between a mainstream versus

that format is as effective as it is. Once you get that, the underlying philosophy is just that of panning. It is an extremely accurate positioning format. This helps to create hyper-realistic scenes and mixes. Initially it was a challenge, but then it all comes down to a discipline of managing the session, tracks, and most importantly knowing the tools. Today, Pro Tools is designed in such a way that the entire mix can change between Dolby Atmos and conventional mix in an instant. It is not as difficult as the initial times were.

**What is your advice to new mix engineers?**

As an engineer, I feel I am incredibly lucky that I am where I am. I stood on the



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# Studio Microphone

## AKG Lyra

AKG Lyra is perfect for creating podcasts, YouTube videos, music and more with 4k-compatible, Ultra HD audio quality. Featuring cutting-edge AKG Internal Element Overload Prevention, an internal shockmount and built-in sound diffuser, Lyra automatically reduces noise and improves signal levels for optimal performance. The four-capsule AKG Adaptive Array offers versatile capture modes that eliminate guesswork, to get professional sound. AKG Lyra works seamlessly with Windows, Mac, iOS and Android devices. There's no assembly required or need for a separate audio interface—it just works, right out of the box.

### Main Features include:

- Ultra-HD Quality Audio with 24-bit/192kHz high-resolution converters
- Use with the integrated desktop mic stand or mount to a standard or boom mic stand
- Zero latency monitoring while tracking with full control over output volume, mic gain and mute
- Four-capsule mic array provides four user-friendly capture modes
- Camera-ready styling for on-screen appeal
- Includes Ableton Live 10 Lite audio production software

### Technical Specification:

- Transfer Protocol: USB 2.0
- Transducer: 4 proprietary, permanently polarized back plate, condenser capsules
- Capture Modes: Selectable; Front, Front & Back, Tight Stereo and Wide Stereo
- Frequency Response: 20 Hz – 20 kHz
- Bit Depth / Sample Rate: 24-bit / 192 kHz
- Maximum SPL: 129 dB SPL (0.5% THD)
- Power Requirement/Consumption: 5V USB / 75 mA
- Impedance: 16 ohms
- Power Output (RMS): 43 mW
- THD: <0.009%
- Frequency Response: 20 Hz – 22 kHz
- S/N Ratio: 98.0



## Sontronics - STC-20 Pack

Sontronics STC-20 Pack is an all-in-one cardioid condenser microphone package that allows achieving the same quality recordings as in a professional studio. With a fixed cardioid pattern, the large-diaphragm STC-20 microphone gives impressive results on a wide range of sources, including male and female vocals, acoustic guitar and other plucked instruments, guitar amp, percussion, drumkit, piano and other acoustic instruments. The STC-20 microphone features a large open grille that houses a one-inch gold-sputtered capsule.

It is recommended for...

- Vocals (sung & spoken)
- Acoustic guitar & other plucked instruments
- Guitar amps
- Piano & other acoustic instruments
- Percussion & drums
- Podcast

### Main Features include:

- Large-diaphragm condenser mic
- Fixed cardioid pattern
- Fantastic for vocals, acoustic guitar, piano, guitar amps, drums, podcast and other acoustic instruments
- Comes with shockmount, popshield, mic pouch and 5m XLR cable
- STC-20 microphone covered by LIFETIME WARRANTY

### Technical Specification:

- Polar pattern: Cardioid
- Frequency response: 20Hz - 20kHz
- Sensitivity: 16mV/Pa
- -36dB  $\pm$  1.5dB
- (0dB = 1V/Pa @ 1,000Hz)
- Impedance:  $\leq$ 200 Ohms
- Equivalent noise level: 18dB
- (A-weighted)
- Max SPL (for 0.5% THD @ 1kHz): 125dB
- Power: Phantom power 48V required
- Connector: 3-pin XLR
- Dimensions: 194 x 53 x 53mm
- Weight: 610g (810g with shockmount)
- Comes with: shockmount, 2 spare elastics, nylon-mesh popshield, zip-up microphone pouch, 5m XLR cable



## Telefunken - Alchemy Series

The Alchemy Microphone Series are large diaphragm tube condensers. These new microphone models are the TF29, TF39, TF47, and TF51 and feature unique sonic profiles developed from the ground up.

The Alchemy Microphone Series boasts of newly designed custom head grilles for transparency and openness, hand-plugged circuit boards, and selected American and European vacuum tubes and transformers. These microphones are the ideal choice for engineers, musicians, and producers.

### Main Features include:

#### TF29 Copperhead

The TF29 features a new old stock American-made 5654W vacuum tube, all-brass K67-style capsule, stand out antique copper finish and a premium Swedish-made Lundahl output transformer. It's a workhorse microphone, accurately capturing vocals, acoustic and electric guitar, drums, saxophone, piano, banjo and nearly any source put in front of it.

#### TF39 Copperhead Deluxe

The TF39 Copperhead Deluxe comes with an addition of a dual membrane K67-style capsule, allowing for 3-pattern selection between cardioid, omnidirectional, and figure-8. It has the same features as in the TF29 Copperhead.

#### TF47

The TF47 is a new design based on the "German" sound, drawing inspiration from the historic U47 and M49. With a deep low end and a forward midrange, the TF47 is excellent for adding depth and presence to any source. The Microphone has an all-brass K47-style capsule, new old stock 5840W vacuum tube, and custom-made BV8 transformer. These characteristics make it especially ideal for recording vocals, guitar amps, upright bass, trombone, cello, percussion, toms and kick out.

#### TF51

The TF51 is based on the "Austrian" microphone sound and exhibits a smooth midrange and airy top end. The 6072A vacuum tube is paired with an edge-terminated style capsule. The output transformer is a custom German-made Haufe transformer. This is a reliable first choice for stand out vocals, acoustic instruments, and percussion.





*The essence of a microphone is to capture a performance whether doing a recording or a show. A good **Microphone** can accentuate the voice but finding the right one for your studio needs can become tricky. Here is a list of microphones launched in 2019 that can make your choice easy.*

#### Technical Specification: (TF29)

- Type: Condenser Pressure Gradient
- Capsule: TK67S Center Terminated Diaphragm
- Tube Type: 5654W (New Old Stock)
- Transformer: Lundahl LL 1935
- Polar Pattern: Cardioid
- Frequency Range: 20Hz - 20kHz
- Sensitivity: 17mV/Pa
- THD at 1kHz at 1Pa (Amplifier): < 0.3%
- Output Impedance: < 300  $\Omega$
- Maximum SPL (for 1% THD): 130 dB
- S/N Ratio: 87 dBA
- Self-Noise (Amplifier): 7 dBA
- Dimensions/Size: 200 mm L x 46 mm Dia
- Current Draw from Mains: 50 mA
- Power Supply: M 902 PSU - 7 Pin Female XLR Input, 3 Pin Male XLR Output
- Cable: M 803 - 7 Meter TELEFUNKEN Tube Microphone Cable, 7 Pin Male & Female XLRs
- Shock Mount: M 703 - Shock Mount, M 782 - Stand Mount

#### Lewitt LCT 040 Match

With the LCT 040 MATCH recording instruments is as easy as it gets. It's tried and tested small diaphragm condenser capsule provides well-balanced sound with a pleasant high-end. The excellent transient response retains the natural musicality of the acoustic instruments. The LCT 040 MATCH is durable and lightweight thanks to its CNC'ed aluminum housing, weighing only 44 g or 1.6 oz.

##### Main Features include:

- Small diaphragm condenser microphone
- Well-balanced sound with pleasant high-end
- Made for acoustic guitar and drum recordings
- Durable and light aluminum housing
- Cardioid polar pattern

##### Technical Specification:

- Type: Condenser, permanently polarized
- Acoustical operating principle: Pressure gradient transducer
- Transducer  $\varnothing$ : 17 mm, 0.67 in
- Polar pattern: Cardioid
- Sensitivity: 18.8 mV/Pa, -34.5 dBV/Pa
- Equivalent noise level: 20 dB (A), cardioid
- Max. SPL for 0.5 % THD: 135 dB SPL
- Dynamic range: 115 dB (A)



- Internal impedance: 203  $\Omega$
- Rated load impedance: 1000  $\Omega$
- Supply voltage: 48 V  $\pm$  4 V
- Current consumption: 7.2 mA
- Connector: Gold plated 3-pin XLR
- Microphone dimensions: 24 dia. x 83 mm, 0.9 dia. x 3.3 in

#### Rode TF-5

The precision sonic matching and beautiful tone of the TF-5 makes it perfect for recording detailed and natural-sounding performances when used as a stereo pair, or for capturing the nuances of a soloist when used as a spot mic. The TF-5 is a small diaphragm condenser engineered to sub-micron tolerances, giving unprecedented consistency of tone and response.

##### Main Features include:

- Matched pair small diaphragm condenser cardioid microphones.
- Imagined and designed in collaboration with Tony Faulkner
- Brand new capsule, precision-engineered to sub-micron tolerances,
- Exceptionally low noise floor (14dbA)
- Includes high-quality RØDE stereo bar

##### Technical Specification:

- Acoustic Principle: Externally biased condenser
- Active Electronics: JFET impedance converter with bipolar output buffer
- Polar Pattern: Cardioid
- Frequency Range: 20Hz - 20kHz
- Frequency Response: 30 Hz - 20 kHz  $\pm$ 3dB // 20 Hz - 20 kHz  $\pm$ 4dB
- Output Impedance: 63  $\Omega$
- Signal to noise Ratio: 80 dB
- Equivalent Noise: 14 dB SPL (A-weighted, as per IEC651)
- Input SPL @ 1% THD: 135 dB SPL (1kHz @ 1% THD, 600  $\Omega$  load)
- Sensitivity: -29 dB re.1 Volt/Pascal or better (35 mV @ 94dB SPL @ 1kHz)
- Dynamic Range: 112.6 dB (1kHz @ Max SPL)
- Power Requirements: 7mA @ 48V phantom power
- Dimensions: Length: 98.7mm Diameter: 20mm



#### SHURE MV88+ Video Kit Portable Mic

MV88+ Video Kit, is a digital stereo condenser microphone that provides an all-in-one solution for capturing professional-quality recordings on-the-go. Designed for podcasters, videographers, content creators, field recordists, and musicians looking to record immersive, rich, high-quality audio wherever, the MV88+ accentuates the power of flexibility, enabling to transform the smartphone device into a professional-level mobile audio and video rig.

##### Main Features include:

- Built-In Headphone Output for real-time monitoring
- Live stream ready
- Seamless compatibility with Shure MOTIV Audio & Video Applications (iOS & Android versions)
- Multiple stereo width and polar pattern options for ultimate flexibility
- Included industry leading Manfrotto PIXI mini tripod
- Included Lightning cable, USB-C cable, phone clamp, shoe-mount mic clip, & neoprene roll-up bag to keep all accessories in one place
- The included phone mount is also compatible with existing set-up, allowing to connect to any tripod with a connector
- Apple MFi (Made for iPhone/iPod/iPad) Certified for direct connection to any iOS device without the need for any additional adapters or connection kits
- Compatibility with lightning-equipped iOS devices and additional devices
- Allows for phone charging while mic is in use (requires USB-A cable and Apple USB3 camera adapter)- iOS users only

##### Technical Specification:

- Height x Width x Depth: 27.0  $\times$  27.0  $\times$  77.0 mm
- Frequency Response: 20 Hz - 20 kHz
- Frequency Response: Adjustable
- Max. Sound Pressure Level: 120 dB SPL (At Minimum Gain, Flat Mode)
- Transducer Type: Condenser
- Polar Pattern: Bidirectional, Cardioid
- Connectors: LTG, USB
- Interchangeable Capsule: No
- Main Functionality: Recording
- Headphone Output: Yes
- Microphone Housing: Metal
- DSP Modes / Presets: Flat, Loud, Acoustic, Singing, Speech
- Requires Phantom Power: Bus powered via USB/LTG VDC



# Independent Producers Blurb on their music and technology

*The era of independent music (read non-Bollywood) is finally upon us. In a country where Bollywood reigns supreme, Indie Music has gradually made a mark for itself and this can be attributed in large to advancements in technology. PT caught up with renowned independent music producers to find out more about their recording approaches, technology they use and if there is still a need for conventional studios and recording rooms.*

## **Keshav Dhar – Illusion Audio**

According to Keshav, what makes an amazing producer is a little bit of technical know-how and an innate musicianship. "In the true sense of the word, a producer is always first creative and secondly technical. Technical know-how needs to only be enough to identify what is required to translate what's up here in our heads to down there on our computer," he says.

Talking about the technology he prefers, Keshav, who comes from the Billie Eilish school of thought, is all about improvisation, DIY and being able to work when inspiration strikes. A minimalist, all he needs is his Macbook, Apollo Duo, Event Opal Speakers, ATH-M50 headphones and a Blofeld Keyboard and he is all set.

### **Technology used by Keshav**

• Macbook • Apollo Duo • Event Opal Speakers • ATH-M50 headphones • Blofeld Keyboard

So, does he believe in having a conventional studio with the large desk and the acoustic musicians recording room? According to Keshav, these are ultimately luxury items. "It really depends on how much of a sound purist you are. Obviously having those things at your disposal will get you a 'better' sound in the technical sense, and if money is no object - go for it, but with DIY recording tech having evolved to the point that it has, you're very much in the realm of diminishing returns with the whole big studio thing. Modern day producers are often also engineers, editors and mixers. So if I had a bunch of money, personally I would invest it into a space that facilitates and inspires creation and capturing that in the best possible way, and studio 'toys' as in fancy outboard equipment would be much more secondary," he explains.





## Jehangir Jehangir – Island City Studios



Jehangir started off as a drummer before getting into production. According to Jehangir, what makes an amazing producer is someone with the innate ability to know what will sound good for the song along with the ability to see that vision into the track itself.

He calls himself a geek, hence uses a lot of technology. "Lately I've been into using my iPad Pro and Apple Pencil as an external touch display to do some fun stuff." Nevertheless, he feels technology has the potential to be really useful as well as very distracting. He continues, "As music makers we are always looking for cool ways of manipulating sound because apart from 12 notes in the scale there are a whole lot of other exciting sounds we can create when we explore sonic texture."

### Technology used by Jehangir

#### • iPad Pro • Apple Pencil

Commenting on the relevance of conventional studios and acoustic musicians recording room, Jehangir says, "As the owner of one such studio, Island City Studios, you might have a biased response in favor of the above. Though I will admit as a producer, I can live without those things for a certain part of the process, but a good room with acoustic musicians performing for the song gives any production that life. Even if it is an old wonky piano sampled for that song, it's done with a purpose to be used in that song". He concludes, "Lastly as musicians and creators we need to be inspired and we need to feed of the energy of other musicians/producers etc. and honestly the best place for this is a purpose built studio for music where you have instruments and different sounds to inspire you and the right kind of equipment to capture that collaboration".

## Ayan De – Paralights Music

For the young music producer and sound engineer, what makes an amazing producer is the ability to remain objective towards a song and make decisions not based on personal tastes and opinions, but rather based on what's needed for the song rather than personal interests. The approach of executing those decisions in an artistic way that is based on personal taste (both the artist's and producer's) and finding a balance is what makes a producer amazing according to him.

Ayan mostly tries to focus on being as transparent as possible when he is working on someone's music as he needs to let the artist's colour come through and enhance everything that is unique about them. According to Ayan, "It's definitely more the technical side of things as I am more a sound engineer than a conventional producer and with technology making strides the way it is, there is always something new to do and try and some new way to make something interesting".

Ayan considers himself more of a music technologist, he says, "Where creating my own tools for the sound that I work towards, or creating something new by blending organic sounds (like a guitar or a drum kit) and processing it using unconventional processes, is something I have been driving towards over the years. Lyrics are the heart of a song and I usually tend to work with the lyrics in focus more than a groove or a nice sound, so pretty much every choice that I make, like a chord or a drum groove, is to drive home the meaning and story of that piece of music, so the experience is more cohesive". Keeping an artist's brand and identity in the centre of the song and the music and the art and nailing that balance as closely as possible is what he focuses on.

Elaborating on the technology he uses, Ayan informs that he has always been an 'In the Box' kind of person. He started off by using a very minimal set up and everything was based on Midi. He tries to do everything as organically as possible, like having someone actually play drums on a triggered kit rather than using a mouse to draw out a groove. "Guitars are usually mic'ed or re-mic'ed in the box using a Slate microphone system or the Oceanway Plugin from Universal Audio."

The heart of his studio is the Universal Audio System and everything else is designed and routed accordingly to its functionality.

Ayan is not a laptop person. "The reason I say this is because my setup is a little excessive for an independent home studio and isn't really designed for portability. I don't use a lot of hardware synths as that just isn't something that I have gotten into. I do however run a couple of computers for my production needs and then the main host system is designed more for mixing and mastering and recently I got another system just running Sadie and Sequoia 7."

### Technology Ayan Uses

#### • Slate microphone system • Oceanway Plugin from Universal Audio • Sadie • Sequoia 7

Ayan believes that conventional studios with a large desk and an acoustic music recording room are necessary. "Even though it is fairly simple to do a lot in a small room with a laptop and a pair of headphones, what has largely been taking a hit because of it (over the last decade) has been musicianship and just the ideology of what something should sound like. Even though the completely programmed synthetic sound is totally and completely a sound on its own and I do respect that and do use it myself, I feel like it has to be a choice more than something that is just done out of a lack of time and effort," he says.

According to Ayan more than the giant desk and the space for a sound, it is more about the workflow and the process that goes into it that is important. "My entire career has pretty much been about getting that big studio sound and aesthetic from a Project Studio set up.

A ton of brands like Universal Audio and Softube, Plugin Alliance, Slate Digital, etc. have bridged the gap between running large expensive machines and being able to cut a very good record in a smaller space. It's just about the knowhow and the ability to stick to a brief and idea from day one. Limitations have always been the path for innovation, it's our job to work with limitations we have instead of against it."



## Vivek Thomas – Vivek Thomas Productions

Vivek has been working as a music producer and mixing/mastering engineer for the last ten years. From these years of experience, he has realised that patience, focus and attention to detail is what makes a really good producer. Also most important is respect, “when we talk about respect we are talking not just about music,” he says. Elaborating on technical knowhow, he continues, “Considering that technology is literally changing every day you have to be constantly updated”.

Vivek is still very much an analog guy and not because it sounds better, but because it is more fun. Where technology is concerned, Vivek uses Prism and Cranesong convertors at his studio with a few outboard gears from Thermionic culture, Rupert Neve, Kush Audio, Bettermaker Kemper and Dangerous Music.

### Technology used by Vivek

• Prism and Cranesong convertors • Outboard gears from Thermionic culture, Rupert Neve, Kush Audio, Bettermaker Kemper and Dangerous Music

For him, being an independent producer is to make good music and to make good music all he needs is his laptop and a good interface and not necessarily a conventional studio or recording room. “You definitely need to know what you are doing. If the artist or band has the budget, he still prefers recording on a console and mix/master ITB with few outboard gear,” he says.



## Rohan Ramanna – Salvage Audio Collective

Rohan has been professionally composing, producing and engineering music in India for about 12 years now (Independent, Commercial and for Film) and has had the great pleasure to study under some incredibly talented and seasoned producers and engineers. He is part of Five-producer collective called Salvage Audio. He also works as a mix engineer at Jehangir Jehangir's Island City Studios.

Commenting on what makes an amazing producer Rohan says, “I’ve come to realise that there are a lot of people out there who don’t even know what a music producer does, and I feel that this job has really transformed over the last few decades. I personally think a music producer is a key facilitator who is tasked with bringing a musical work to life, right from an artist’s original idea until the end completed piece.”

According to Rohan, the best producers understand what the purpose of the music is before they set off on any piece. If a producer is tasked with working on other peoples material (A film director, a band or a singer/songwriter), they need to know whether the music that’s being made is for commercial purposes or if it’s purely a personal expression. The best producers find what is most unique about the artist, and really try and bring that out, rather than follow references and trends. “In most cases, producing music for an artist is a complex set of steps and sometimes producers feel that they have to control every step of the process. In truth - I found this is not always the best option - sometimes it’s about knowing when NOT to step in, sometimes it’s about getting the right people in the room at the right time and facilitating the flow of ideas and then curating the best ones after it’s recorded,” he says. He continues, “A good producer is one who understands that the content of the piece is the most important thing. Not how cool the bass sounds, how good the mix is or how loud the master is. The best producers constantly study each step of the music making process. Composition, arrangement & orchestration, recording, editing, mixing and mastering. And lastly, the best producers are all very patient! It can be a lengthy and complex process, keeping your cool and keeping the performers happy and comfortable is incredibly important.”

### Technology used by Rohan

Talking about the tech he uses, Rohan says, “Today’s environment requires musicians to be fairly diverse in their skill set in order to survive, so the work we pick up is extremely varied in terms of requirement of equipment and space”. Rohan composes and edits at home and keeps all vocal, drum, strings and horn recordings for the studio and tends to record guitars and bass at home via DI and reamp them at the mixing stage.

### Rohan’s home is equipped with:

• Mac book Pro • 2 electric guitars • 2 basses • A midi Keyboard • A 10 year old pair of Adam audio A7s • A motu Ultralite mk4 • The UAD satellite octo-2, and • A pair of Audeze LCD-Xs.

As part of Salvage Audio, he has access to instruments like ukeles, mandolin, percussion, synths etc.

So does Rohan think it necessary for an independent music producer to have a conventional studio? “Here is a simple answer to an otherwise heavily debated topic. It purely depends on the sound you are going for. For some, making lofi music is what they enjoy, so there is no need for a fancy studio with a ton of gear. They can get away with using a semi treated bedroom studio. There is a lot of music you can create at home, but for certain instruments, you need space, and you need decent equipment to capture it. A lot of producers today start at home, and some of them remain happy in that space, it’s about creating the content they want to create and they keep their audiences happy too.” Having said that, according to him, most of the working musicians and producers he knows, generally always come into the studio to record final vocals, reamp guitars or drums if required. “Mixing in a well-treated room can save people months of time in the mix stage. Even the producers who create purely instrumental electronic music will come into the studio to mix their material. There might not be a need for a large format console in every situation, but honestly it is incredibly difficult achieving that kind of low-end extension and accuracy that is required to master in a monitoring room, even harder in an apartment in Mumbai.”

Talking about his own set-up he says, “Having a semi-treated home studio definitely keeps budgets in check, and allows me to be creative without racking up studio fees, but I never commit any processing at home - it’s more like a safe space to ideate freely. Every single mix decision is rechecked at Island city, and all scratch recordings at home are generally redone there too.”

He further adds, “There are a lot of producers who just use pre-processed samples that are found online and can get away with doing pretty decent mixes at home in semi treated spaces, but to really create new sounds and build your own unique signature, recording your own raw tracks is the way to go.” Rohan believes it is completely necessary and relevant for most types of music to have the conventional studio with the large desk and the acoustic musicians recording room.





# Stained Class Productions

## *Beyond the Realms of Sound*



*Stained Class Productions is a recording, mixing, mastering and audio editing studio based out of Bangalore. Owner **Mrinal N.**, took time out to talk about the journey of setting up Stained Class Productions. **PT** reports.*

Control Room is flexible and large enough for expansion into a cinema

Meet the father & son duo, Murugan N. and Mrinal N. whose musical influence has been **Judas Priest** and who have aptly named their studio after the fourth studio album of Judas Priest - *Stained Class*. Mrinal who manages the technical aspects of the studio is also the in-house engineer, while his father Murugan takes care of the finances.

Opening a studio was imminent for Mrinal. Watching a bunch of 'album making' and documentaries of bands on how they made their records, while growing up led him to pursue a

career in audio recording, mixing and mastering. One such documentary that inspired him was that of Judas Priest's *British Steel*. So while pursuing a degree in Audio engineering, Mrinal started doing freelance work for both live and studio for local Rock & Metal bands in Bangalore like Bevar Sea, Kryptos, Dying Embrace and Shepherd to name a few.

**Stained Class Productions** was conceptualized while he was doing his VISCOM course and while working for Rock & Metal bands. The musicians, he says, were kind enough to take him to their studios or to their live events and

allowed him to work with them. "I got to visit a lot of studios in town in the process and there were always a few minor aspects that used to bother me and made me feel that I'm not getting the best result out of the session," he continues.

Mrinal realized that none of the recording studios had their own character. "Most of them were padded 'dead' rooms (which might work for most engineers)," he recalls. What influenced him to become a recording engineer was the fact that most of the classic albums and songs were recorded with

unconventional methods and spaces which in turn would add its own flavor to the recording.

The whole idea behind designing and building his own studio was to have a big Live Room, a regular booth and a decently sized Control Room, which would be acoustically treated rather than just padded walls.

For Mrinal, finding a location was no problem. Mrinal chose his old home located in South Bangalore and converted it into a studio. "We chose this place in particular for multiple reasons, firstly it was a plot that we owned so





**Live Room primarily used for Drum Tracking, multi-musician performances, live recording of a full band, group vocal performances, choirs. Pictured here is the Drum recording session for Thermal and a Quarter**

we could design the space the way we liked it. Secondly, this is a well connected part of the city but mainly this is the part of Bangalore that is relatively more quiet, relaxed and still has some bit of greenery left," he says.

A few basic requirements were given to the acoustic consultant **Rahul Samuel**, Founder of LiveEnd and Technical Support Specialist for Meyer Sound. "Mrinal did not ask the usual questions about how much will it cost and how soon can it be built, but instead he focused on questions like: What do I need to create a successful studio? How much space will I need to record live musicians? And I have a building, here are the dimensions. Will this work?"

"We only gave him a few basic requirements that we were not going to compromise on, these were each of our recording rooms should have some character of their own, bare minimum treatment or just enough to take care of the problematic frequencies," says Mrinal. Mrinal informs us he was specific about having no dead spaces but at the same time did not want it to be overly reverberant. He wanted the main focus to remain on the Live Room and the Control Room that would be used for recording, mixing and mastering. Other than these specifics, Rahul was given a free hand to come up with a design and solution that he felt would work best for the space. "Mrinal did not ask about dampening or sound proofing. Instead, we discussed factors such as NC, Isolation - both acoustic (air) and structural, and Reverberation Time across the full spectrum that the rooms must achieve.

With a design-construction approach like this, you make the best of your resources as you know where you can splurge and where to cut down," adds Rahul.

A few months after their initial discussion, Rahul recalls his very short conversation with Mrinal, "All he said was, 'Hey, I'm in the process of demolishing the existing building (his house), let me know what we should build'. It's a dream come true for any acoustician but also a huge responsibility and commitment."

Mrinal's requirements for the studio were very specific.

- Recording: Live Instruments including drums
- Vocal booth large enough for quiet-

er solo instruments

- Control room that is flexible and large enough for expansion into cinema, if necessary
- Space for artists and clients to be comfortable during extended hours/ days both within and around the live rooms
- Living quarters for artists during tracking - everyone needs a break or nap
- Most importantly, a live room, versus what seems to be staple - dead rooms

The current space has two Recording Rooms with one common Control Room. The Live Room is isolated completely on a separate floor and the other Recording Room is on the same floor as

the Control Room. "We are happy how it turned out and our clients are happy as well with how their instruments sound in the room and with the end results (recordings)," says Mrinal.

## **SOME HEADS ARE GONNA ROLL - THE DESIGN**

The set up and the aesthetics of the studio were a joint decision and collaboration between Mrinal and Rahul. "We asked Rahul if the aesthetics of the studio would work with the treatment and designs he had planned and if it would affect the final response of the room tone," explains Mrinal.

For Rahul, the fun part was designing the acoustics of the studio. "The studio is very different, the walls were bare and one could see the bricks. The rooms are 'tuned' to very precise dimensions and volume, reducing dependency on treatment to manage acoustical energy that would otherwise present itself as unwanted room modes. This design aspect was possible only because we built the structure from ground up. This is an extremely effective approach and rare, but we went all in here," says Rahul.

The surfaces of the room were carefully designed starting with procuring and caring for the bricks in order to maintain consistent acoustical properties on the surface. All rooms were designed as a room-within-a-room, complete with floating floors even though it is not strikingly evident at first glance. First reflection points were locally treated with custom tuned panels.

### **The Acoustics**

With a live room as large as what Stained Glass Production has, it had to be kept flexible. "I had two factors in mind - firstly to keep Mrinal excited about the space over years to come; and secondly to allow for artistic decisions on acoustics," says Rahul. The excitement and artistic decisions were achieved by keeping the room live and using modular custom-built panels that are movable. "We decided against creating a uniform sounding room, so just by moving source location, orientation and source-mic relation within the room, we were able to achieve different acoustic behavior. The movable modular acoustic panels aid this," he adds further.

The airlocks are functionally disguised as storage, cupboards, and equipment rooms and go unnoticed yet effectively isolating rooms from each other. The entire designing was done keeping in mind future expansion plans.

"Air locks are very important to any studio where isolation is critical to its function. We spent a lot of time on floor plans making sure we have all the necessary airlocks without losing useable studio floor space. I'm glad to say the extra effort paid off well. The

**"Every piece of gear that you will see in our studio is selected after doing multiple research. Every item has a particular character that impressed us and there is still a bunch of gears that is in our wish list."**

**MRINAL N**





studio feels spacious and lively - not just in the way it sounds but in the physical space which complements the warm but industrial-no-nonsense look and feel," says Rahul.

### **The Live Room**

The goal was to create a room large enough for a 6 piece band to play simultaneously for live tracking sessions. "We both agreed that this always makes for a better performance than tracking artists and instruments separately," says Rahul. "Since the building was a multi-level building, we ran into an issue - ceiling height. At this stage, we eliminated two floors of the building. The floors which were originally allotted as housing were now re-allocated for artist residence and to allow for nearly twice the ceiling height in the studio," Rahul continues.

The Live Room is primarily used for Drum Tracking, multi musician performances, live recording of a full band, group vocal performances, choirs, sometimes just for the big room sound in the recording be it for acoustic guitar performance or guitar amp tracking (live / re-amp). The Live Room is equipped with a 32in & 32out audio breakout box and the Booth is equipped with a 12in and 4 combo I/O ports. The Booth is a relatively smaller space but big enough to house a drum kit if required for a much tighter and focused sound if that is what is required but we usually tack vocals, acoustic guitar, violin, individual percussions etc.

### **Electrical Power**

One of the most overlooked aspects while building studios is electricity. This was factored into the initial structural and electrical design for the building. "We isolated general power and have dedicated power lines for the studio with its own grounding. We designed a robust grounding system that suits the soil conditions at the studio location. These professionally installed systems have a long life and are easy to maintain and monitor. All the equipment stay protected and the noise floor of the systems stays at their lowest," informs Rahul.

### **HVAC**

Elaborating on the HVAC system, Rahul Says, "We designed the HVAC system keeping the target NC in mind. AHU and heat exchangers were chosen considering the environment and noise criteria in mind. All the ducting was treated acoustically with plenums and baffle boxes to maintain required room to room isolation. The challenge here was the lack of a false ceiling - which was removed to suit the dimensions and volume for the right acoustics. Ideally, false ceilings are used to tuck in the ducts, keeping the noise levels



**Vocal recording session - Alexis D'Souza; the space has two recording rooms with one Common Control Room**

down. But with clever design and adaptations, we achieved targets allowing us to run the HVAC system full-time, during recording sessions as well. This full-time system does not add audible noise into your recordings, and with adequate fresh air input, you won't feel the well-known 'studio fatigue'. This keeps the artists and engineers fresh and energetic. This is just as important as using good gear and acoustics.

### **DELIVERING THE GOODS – THE GEAR**

"Every piece of gear that you will see in our studio is selected after doing multiple research, review from fellow engineers and doing demos ourselves (this is mainly possible due to the support we received and continue to receive from the suppliers). Every item has a particular character that impressed us and there is still a bunch of

gears that is in our wish list that we'll be procuring over the course of this year," reminisces Mrinal.

Some of the gear that Mrinal currently owns was purchased over time when he was doing freelance work. "Once the studio was setup we sourced equipment from **ProMusicals, SoundGlitz, Prym Audio & The Inventory.**"

"We currently have the **ADAM Audio A5X** (In L-R setup) with the **ADAM Sub8** for low-end extension and are reviewing and demoing Mid-Field monitors," says Mrinal.

"We at SoundGlitz share special relations with Mrinal & Stained Class Productions. Right from its inception we were instrumental in consulting & giving solutions for his studio & production requirements. We have supplied brands like **Sennheiser headphones HD280 Pro, Sennheiser 600 Series Drum Mics, Ashton Condenser mic Stealth, Aston Starlight Stereo Pair Mic, Adams mon-**

**itor A5X with Sub 8, Konig & Meyer Stands, Warm Audio Pre Amps & compressors, Gator Monitor stands,"** says **Siddharth Patwa**, Director – SoundGlitz.

**Solomon Nesaraj**, Product Specialist, The Inventory says, "We supplied a few gears to Stained Class Productions. The outboard gear used in the studio was provided by us and we supplied all the **Warm Audio** gear." He recalls giving suggestions on what can be updated in the studio, what will suit his workflow and also suggested a couple of modules that would be right for the kind of studio he has.

"I liked the studio, it does not have a traditional studio look, and it is completely different. It looks like a home, a place where I can come and chill out and do my work," enthuses Nesraj.

### **RIDING IN THE WIND**

The studio is still at its infancy (a year & 5 months roughly). They have a rough road map planned, based on the how the studio grows, the financials and the type of work that they get going forward. "The current setup is more than capable of handling our current workload and the clients with whom we have worked with so far (be it musicians or other engineers) have been satisfied and happy with the gear and the end result," says Mrinal.

"I am very pleased at how the studio has turned out. Hats off to Mrinal for being open to ideas and going all out on this one. He had very good partners in the construction phase who happily co-operated with an acoustician and never questioned our judgment. This studio, like many other great ones, will continue to evolve especially with a progressive entrepreneur like Mrinal behind it," concludes Rahul.

**"The rooms are 'tuned' to very precise dimensions and volume, reducing dependency on treatment to manage acoustical energy that would otherwise present itself as not present it as unwanted room modes."**  
**RAHUL SAMUEL**



## D&B DELIVERS HIGH PERFORMANCE INSTALLATION WITH NEW KSLI SYSTEM

German audio technology and Solution Company **d&b audiotechnik** has announced the introduction of the **KSLi System** at ISE 2020. Delivering a complete installation package for the most comprehensive range of installations and applications, the system features the **KSLi8 / KSLi12 loudspeakers**, combined with (**KSLi-SUB / KSLi-GSUB**), subwoofers, the new **40D** high performance installation amplifier, plus a complete catalogue of system specific accessories and customization options.

Underscoring d&b's commitment to deliver significant performance improvements over all existing installed audio solutions, the KSLi8 and KSLi12 are acoustically identical to the mobile KSL System and deliver the same performance characteristics: full-range broadband directivity control, extended low frequency response and enhanced high frequency resolution in a complete package designed specifically for high performance installations.

The KSLi8 and KSLi12 loudspeakers, with 80° and 120° horizontal dispersion, respectively, provide

consistent pattern control down to the lowest frequencies, in part due to the geometry of two front-facing 10-inch drivers and two side firing 8-inch drivers, which couple and apply cardioid techniques to cause directivity with low-frequency headroom.

The new KSLi SUB excels where space or weight limits exist, either flown in an array KSLi-SUB or ground stacked KSLi-GSUB.

The 40D installation amplifier is designed for fixed installation applications and is the most powerful four channel Class-D installation amplifier in the d&b range. This high-performance

amplifier provides the power density required to drive the KSLi loudspeakers

to full potential. Further supporting the needs of integrators in the field,

the new 40D amplifier also features a 4.3-inch color display showing a range of speaker settings, device status and more.

The entire d&b SL-Series represents a significant evolution in the design and performance of line array systems. The ability of the SL-Series to control the full frequency spectrum minimizes low-mid frequency masking in the reverberant field, in turn allowing system engineers to ensure the delivery of a pristine and powerful mix while being able to reduce the overall sound pressure level in the venue. The directivity greatly improves the system's program intelligibility while dramatically cleaning up the stage sound as well as backstage environment from extraneous noise.



## DIGICO LAUNCHES A164D WALL LCD AND A168D STAGE FOR 4REA4

**DiGiCo** announced two new I/O Racks, the **A164D Wall LCD** and **A168D Stage**, for its acclaimed **4REA4** processing engine for networked audio in installations, at this year's ISE show in

Amsterdam. Both Racks bring all the connectivity of the original A164 Wall LCD and A168 Stage, but with the additional advantage of Dante connectivity.

"With 4REA4, we enabled audio over IP, but until now it had to be on a dedicated network," explains DiGiCo Technical Sales Manager, **Tim Shaxson**.

"Adding Dante connectivity not only adds the flexibility and familiarity of the Dante network protocol, but also means that consultants and integrators can take advantage of existing network infrastructure to drop I/O for their 4REA4 anywhere on the network."

The A164D Wall LCD is a 16 input 4 output I/O Expander that uses the Dante network protocol to provide fixed, additional I/O anywhere on a network and is designed for wall or floor mounting. It comes with 16 Mic Preamps on XLR inputs with Phantom Power status LEDs and four XLR Line Outs with direct preamp control

from the 4REA4 controller software. It can run at both 48K and 96k sample rates and it is AES67 compatible. Primary and secondary Dante ports come with locking EtherCON connectors and can run in both redundant and switched mode. All LCD labels are dimmable and can be customized using Dante controller software.

The A168D Stage is a portable 16 input 8 output I/O Expander, again using the Dante network protocol to provide additional I/O anywhere on a network. It comes with 16 mic preamps on XLR inputs with Phantom Power status LEDs and 8 XLR line outputs with direct preamp control from the 4REA4 controller software. It runs at 48k and 96k and is AES67 compatible. Primary and secondary ports again come with locking EtherCON connectors and can run in redundant or switched mode.



A164D Wall LCD



A168D Stage



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## EM ACOUSTICS' DEBUTS NEW REFERENCE SERIES LOUDSPEAKERS

**EM Acoustics** has debuted the new flagship model of the new **R10 Reference Series** point source loudspeaker. The Reference Series is a low profile, ultra-high quality full range point source loudspeakers with flat frequency and phase responses. Coupled with EM Acoustics' DQ Series amplifiers, the Reference Series offers a range of tools for audio professionals seeking high performance in a compact form factor.

The R10 is a 3-way passive system

featuring dual 10-inch LF drivers and a 4-inch/2.5-inch mid-hi coaxial unit. Housed in an optimally tuned enclosure of the acclaimed HALO Series, the R10 is supplied with two different, easily interchangeable dispersion waveguide options; a wide 110° x 50° guide for shorter throw applications and a narrower 80° x 50° option for controlled coverage over longer distances. Both are rotatable for maximum versatility and offer extensive pattern control to below 800 Hz. To ensure full compatibility with the rest of

the EM Acoustics portfolio, the R10 – along with the rest of the Reference Series loudspeakers – is voiced with the natural, flat characteristics.

The R10 features a sleek, weather-protected polyurethane finish and tour-optimized, handling and rigging systems that complete the package. The architecture and construction of the R10 combined with EM Acoustics' FIR processing liberates each component to achieve levels of sonic performance.



## MACKIE THUMP15AS DELIVER IMMERSIVE AUDIO AT FULL GOSPEL CHURCH

The **Full Gospel Church** in Sarvodai Nagar, Jabalpur is known to be actively involved in the development of the community in addition to its services, which has garnered a great deal of praise for their initiatives.

During recent times, the church has revitalized the premises with a much needed dose of ardor and energy, thanks to the newly acquired **Mackie Thump15A** powered loudspeakers playing a crucial role in faithfully representing the Word of God through the preacher's voice. The speakers were installed by Manjeet Electronics based in Jabalpur.

The management at Full Gospel Church shares, "We were looking for a competent and aesthetically

pleasing loudspeaker system that would deliver top quality reinforcement for speech and music during our regular services. Manjeet Electronics recommended us to opt for the Mackie Thump15A owing to their trust in its exceptional quality and delivery, being dealers for Mackie themselves; and we're extremely happy with our decision. The Thump15A offers pristine quality audio with remarkable flexibility and efficiency and the fact that the attendees are enjoying the sound says it all."

**Mackie Thump15A powered loudspeakers**



## FUNKTION-ONE LAUNCHES SMALLEST LOUDSPEAKER MODELS

**Funktion-One** has launched two compact loudspeaker models – the **F5** speaker and the **SB8** bass unit.

The Funktion-One F5 is a unique loudspeaker innovation, which offers an extremely balanced and natural sound quality that's not often found in loudspeakers of its size. The F5's ultra-compact dimensions and high output mean it is suited to a wide range of applications, including distributed public address systems, bars and restaurants, as well as domestic applications, such as home cinemas, desktop monitoring, and home music systems.

The F5 features a Funktion-One bespoke wide-range, high-sensitivity 5" driver, an integrated high pass filter for low frequency protection, angled

cabinet design for desktop use and a 3/8" microphone stand mount.

The Funktion-One SB8 is an extremely compact, yet powerful and convincing bass unit. It is perfect for applications where a conventionally sized subwoofer is too large or obtrusive, such as in bars, restaurants, retail and galleries, as well as domestic applications.

The dynamic and musical SB8 features a high-sensitivity 8"

bass driver and requires no EQ or controller, only crossover filters. A self-powered version will be available soon.

Funktion-One founder **Tony Andrews** said: "We're very happy to introduce the

F5 and SB8 at ISE 2020. Though they are small in size, they are capable of the high-performance standards that we demand from all of our loudspeaker innovations."





## MARTIN AUDIO ANNOUNCE FIVE NEW CEILING LOUDSPEAKERS FOR ADORN COMMERCIAL SERIES

Martin Audio have announced a further five new products targeting commercial installation sector with in-ceiling and pendant loudspeakers joining the **ADORN** series.

The ADORN commercial series has now been expanded by three in-ceiling loudspeakers and the company's first ever pendant speaker, available in white or black as standard.

Martin Audio ADORN on-wall and ceiling loudspeakers bring class-leading performance, reliability, and value to a wide range of commercial sound installations — from retail outlets, bars, and restaurants to corporate offices. With Martin Audio's signature sound characteristics, the ADORN series is the choice for background and foreground systems which require superior sound quality from visually discreet, ultra-compact enclosures.

All the new ceiling models have a nominal impedance of 16 ohms, enabling four or more speakers to be driven in parallel by one amplifier channel, thereby maximizing efficiency and minimizing cost. The new ceiling additions are also fitted with an internal high-quality 70V/100V multi-tap line transformer

with a switch to select the output level. For full-bandwidth protection, the low and high frequency sections are individually protected against overload in all models.

Comprising a 4" (100mm) LF driver and a 0.75" (19mm) silk-dome tweeter, the **ACS-40TS in-ceiling speaker** produces 108dB peak output at 1 metre and its ported design delivers strong bass that extends down to 73Hz. The wide 180° conical coverage of the ACS-40TS makes it particularly suitable for low ceilings and reduces the number of speakers required for even coverage — leading to a reduction in installation cost. It features a shallow backcan for installation in ceilings with a minimum cavity depth.

Featuring a 5.25" (100mm) LF driver and a 0.75" (19mm) silk-dome tweeter, the **ACS-55TS in-ceiling speaker** produces 113dB peak output at 1 metre and its ported design delivers strong bass that extends down to 79Hz. The wide 150° conical coverage of the ACS-55TS makes it particularly suitable for low ceilings and it features a shallow backcan for installation in ceilings with a minimum cavity depth.



The **in-ceiling ACS-55T** comprises a 5.25" (100mm) LF driver and a 0.75" (19mm) silk-dome tweeter, produces 113dB peak output at 1 metre and its ported bass reflex design and backcan with generous internal volume maximizes low frequency output and delivers strong bass that extends down to 62Hz. It also features a wide 150° conical coverage.

Finally, the **ACP-55T pendant speaker** features a 5.25" (100mm) LF driver and a 0.75" (19mm) silk-dome tweeter, produces 109dB peak output at 1 metre and delivers superb sound quality for both music and speech reproduction. Its pendant enclosure is equipped with a single-point mounting system plus provision for attaching a safety cable.

It also features a wide 150° conical coverage.

Summing up, Managing Director, **Dom Harter** said, "These latest announcements mean we have announced ten new products for different markets and applications since the turn of the year. New product development is the life-blood of our rapid growth in the last three years and we are continuing with that winning strategy in 2020. I'm delighted with this range of ceiling speakers, in particular the company's first pendant speaker, and I believe that the extended ADORN series is a formidable value proposition for the worldwide commercial market."

## RCF IMPROVES TOURING & THEATRE LINE WITH RDNET, FIRPHASE AND TT 4-A SERIES

### New products offer Multi-Configuration and Control, With Rotatable Waveguide, FiRPHASE and RDNet on Board

RCF continues to improve its flagship Touring & Theatre products, infusing them with RDNet and FiRPHASE as standard, and it has also extended the range, notably with the three-product **TT 4-A series**. The new series has been designed to deliver top quality sound for highly demanding events, both indoors or outdoors, and for small to medium sized areas.

**TTL 4-A (line array), TTW 4-A (wide dispersion) and TTP 4-A (point source)** are equipped with 2 x 10" LF woofers and high performance 4.0" compression driver on a rotatable/swappable waveguide. The TTL 4-A waveguide is 100° x 25°, the TTW 4-A offers 100° x 50° dispersion and the TTP 4-A is 60° x 25°. All models are powered by 2 x 1600W Class D amplifiers.

Due to the advanced rigging and 90° rotatable waveguide the series offers infinite possibilities. The TTL 4-A's rotatable waveguide can be moved from the upper to the central position—swapping the woofer, and allowing the speaker to be arranged in vertical array or constant curvature clusters with up to six modules.

The TTW 4-A can be used alone to generate a 100° x 50° homogeneous coverage, stacked/flown in a column or arranged in constant curvature clusters with up to four modules, the rotatable horn allowing the speaker to be used in both the vertical or horizontal planes.



The TTP 4-A elements can be used individually to generate a 60° x 25° homogeneous coverage, flown in a column or constant curvature clusters—again with vertical or horizontal orientation,

with up to six modules per line. This offers flexibility to rental companies as these enclosures can either be run in series or intermixed.

All are equipped with FiRPHASE 0° linear phase and RDNet as standard. In fact, RCF now has five products with FiRPHASE and RDNet plugin fitted to its TT+ series.

#### New Firmware and RDNet on TT+ Series Speakers

RDNet network connection embeds now all the TT+ speakers and allows FiRPHASE technology. Older models can be upgraded by installing the optional RDNet board and then running a firmware upgrade from the RDNet software.

## SHURE CELEBRATES 95 YEARS IN PROFESSIONAL AUDIO

Shure Incorporated is proud to celebrate its 95th year as an industry leader in audio technology. From its humble beginnings in 1925 as a one-man company selling radio parts kits, Shure has a rich legacy of innovations in audio, and today, offers a diverse portfolio of game-changing and industry standard wired and wireless microphones, personal and professional listening products, and

directional microphone with a single moving coil dynamic element.

- SM58 microphone, the industry standard worldwide for live vocal performance.
- Vagabond 88, the world's first hand-held wireless microphone.
- SE Earphones, premium, "in-ear" earphones with Sound Isolating technology and unique sound signatures.

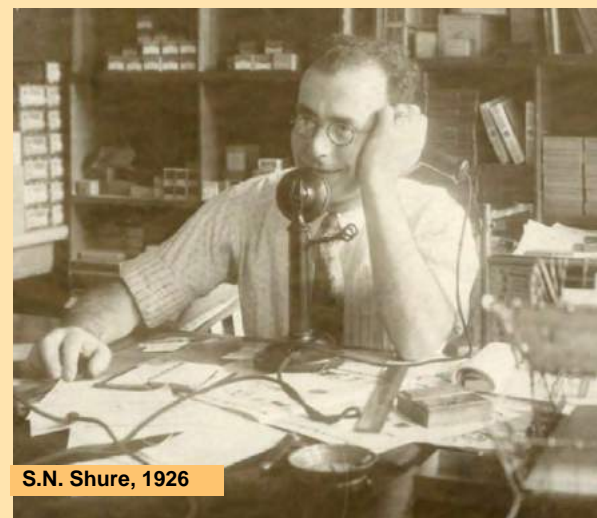
of intelligent wired and wireless microphone systems for A/V conferencing and discussion.

- The SM7B microphone, widely used for studio recording, podcasting, and audio blogs.

This past year was another notable one for Shure product innovation. The Company launched TwinPlex, a revolutionary new subminiature lavalier microphone; the MV88+ Video Kit, a new

Games, the Academy Awards, and by local, state, and national governments worldwide. Shure equipment is also embedded in offices of the largest global companies, bringing people together remotely, with clear audio in virtual meetings.

"Whether our customer is a musician, audio engineer, lecturer, broadcaster, videographer, AV integrator, content creator, or simply a



S.N. Shure, 1926

conferencing and meeting solutions. Shure products are now sold in more than 120 countries, and through the decades, they have been used around the world by such luminaries as Dr. Martin Luther King, Jr., Elvis Presley, Pope Francis, Nelson Mandela, The Beatles, and every United States President since Franklin D. Roosevelt.

*Important product innovations throughout the Company's 95-year history include:*

- Unidyne I Model 55, the first uni-

- Axient Digital, the world's leading wireless microphone system with intelligent hardware and software to detect and avoid interference.
- KSM8 Dualdyne dual-diaphragm dynamic handheld microphone, featuring a patented cartridge design with ultra-thin diaphragms and groundbreaking reverse airflow technology.
- MOTIV digital microphones and recording solutions that deliver great sound quality anywhere.
- Microflex MXW, MXA, and MXC lines

stereo microphone to enhance content capture on smart phones; Microflex Advance MXA910 with IntelliMix, a leading solution in ceiling-mounted audio capture technology; and the AONIC line of listening products, including AONIC 50 Wireless Noise Cancelling Headphones and AONIC 215 True Wireless Sound Isolating Earphones.

Shure users include people in the spotlight as well as the technicians and engineers behind-the-scenes. Shure products can be found in use at the Super Bowl, the GRAMMYS, the Olympic

music lover, Shure has an innovative audio product to exceed their expectations," said **Christine Schyvinck**, Shure President and CEO. "Our founder, S.N. Shure, was dedicated to creating products of exceptional sound quality, durability, and technical innovation. His vision, combined with the passion, expertise, and creativity of our Associates, has led us through 95 years of success. We are very appreciative to all of our customers and channel partners for their support over the years."

## BISHOPSOUND LAUNCHES DELTA DUAL TWIN 15" ACTIVE SPEAKER

BishopSound, has announced a brand-new addition to its range of highly affordable point source PA speakers - the 1,000-Watt **RMS Active Delta Dual 15** with DSP.

Part of BishopSound's recently announced move to all-plywood construction for its DELTA range of speakers, the 1,000 Watt Delta Dual 15 active is designed for a tough life on the road, being constructed from 18mm (13 ply) birch marine plywood painted with four coats of textured jet black PU paint. Reinforcing the new enclosure's strength, the grille has

been doubled in thickness compared with previous models and is recessed to protect it from knocks and bumps on tour.

Inside, the Delta Dual Active 15 is just as rugged. Aimed primarily at DJ users and Houses of Worship who are looking for an easy to use, quick to set-up system delivering huge power and 'thump', the Delta Dual 15 offers an easy to use 'single knob' digital signal processor and a Class D power amp which delivers 1000 Watts into a BishopSound BRC175 100w RMS Compression Driver and a pair of cast

aluminium BDP15 speakers (rated at 600w RMS each). BishopSound says this combination gives the user 1300 Watts capacity allowing for plenty of headroom.

Reinforcing the Delta Dual 15's easy to use credentials, the speaker comes with Bluetooth which means one V5.0 Bluetooth device will drive two of these speakers in stereo. Alternatively, of course, users can simply connect their music source with an XLR cable or 1/4" jack, plug into the mains and be ready to start performing.





## ABR CINEMAS DELIVERS POWERFUL AND IMMERSIVE AUDIO EXPERIENCES WITH JBL PROFESSIONAL CINEMA AUDIO SOLUTIONS

To deliver immersive, dynamic sound in three theaters, sound integrators **Digital Sound System** equipped **ABR Cinemas The Next: Gudivada** with class-leading JBL Professional cinema audio systems.

ABR Cinemas The Next is a world-class multiplex located in historic Gudivada. With three luxurious theaters, ABR Cinemas is one of Andhra Pradesh's premier cinemas. To create a more immersive AV experience with even, balanced coverage, ABR Cinemas recently decided to upgrade its aging audio systems.

ABR Cinemas hired sound integrators Digital Sound System to install three cutting-edge HARMAN Professional Solutions cinema audio systems featuring class-leading **JBL loudspeakers, Crown amplifiers** and state-of-the-art **Dolby Atmos processors**.

"We are proud to have been associated with HARMAN Professional Solutions and all of the products recently installed at ABR Cinemas," said **Dariya Hussain Syed** of Digital Sound System. "The JBL Professional **4732 loudspeakers** and **4642A subwoofers** have delivered exceptional audio results. We received the products promptly and the technical support from HARMAN Professional Solutions helped us complete the installation on time."

Digital Sound System equipped the Audi 3 theater with an immersive 32-channel Dolby Atmos solution powered by a **Dolby Atmos Cinema Processor CP850** and **Dolby Atmos Interface DAC3202**. To deliver crystal clear sound, Digital Sound System installed **JBL 5732 ScreenArray loudspeakers** in left, center and right positions.

To provide additional low-frequency support, Digital Sound System selected powerful **JBL 4642A dual-driver subwoofers** and **JBL 4641 subwoofers**. Digital Sound System mounted **JBL 9310, 9300, and JBL 8320 cinema surround loudspeakers** on the walls and ceiling to ensure consistent coverage throughout the theater. The system is powered by **Crown DSi 4000, DSi 2000 and XLC 2500 amplifiers**.

In the Audi 2 theater, Digital Sound System installed a complete 7.1 cinema audio system featuring JBL 4732 ScreenArray loudspeakers in the left, center and right positions. Digital Sound System selected JBL 4642A dual-driver subwoofers to deliver smooth bass response and JBL 8320 compact cinema surround loudspeakers to ensure balanced sound in every seat. The system is powered by Crown DSi 4000 and DSi 2000 amplifiers and controlled using a state-of-the-art JBL CPI2000 cinema processor.

Digital Sound System installed a



ABR Cinemas The Next

compact 7.1 cinema audio system in the Audi 1 theater, featuring **JBL 3732 ScreenArray loudspeakers** in the left, center and right positions. The system is enhanced with a JBL 4642A dual-driver subwoofer for low-end support and JBL 8320 compact cinema surround loudspeakers for comprehensive coverage. The system is powered by Crown DSi 4000 and DSi 2000 amplifiers. A JBL CPI2000 cinema processor offers complete control over the system.

"We recently had JBL Professional products installed at ABR Cinemas in Gudivada," said **Ramakrishna Anil Kumar Pechetti**, CEO, ABR Cinemas. "The sound quality and product performance have

been very good. Working with the HARMAN Professional Solutions team has also been a great experience, as everyone was highly professional and ensured timely delivery of the project. I'd recommend JBL Professional products for future upgrades at any branch of ABR Cinemas."

"With a forward-looking approach and a focus on quality, ABR Cinemas wanted to offer a world-class cinema experience for guests in Gudivada, Andhra Pradesh," said **Aditya Todi**, Senior Director of Sales and Marketing, HARMAN Professional Solutions, India and SAARC. "We're glad to have been part of this journey with them."

## L-ACOUSTICS LAUNCHES MILAN-CERTIFIED LA2XI AMPLIFIED CONTROLLER FOR INSTALL

Recognizing that the increasingly robust installation market demands scalable, economical amplification, **L-Acoustics** launched its first install-specific amplified controller at ISE 2020. Primarily designed to power L-Acoustics compact loudspeakers, the bridgeable 4 x 4 channel **LA2Xi** offers anywhere from one to four outputs, allowing it to also drive medium and large format loudspeakers, in full or reduced SPL, for various types of applications. LA2Xi is the ideal choice to power background music in leisure installations, distributed fill systems in perform-

ing arts centers, studio monitors, private auditoriums and more.

LA2Xi adapts to the needs of various applications, allowing to choose a four-, three-, two- or one-output channel configuration. In 4 x 4 single-ended mode, it can drive up to 16 X4i or 5XT compact coaxial loudspeakers. In residential applications where maximum SPL is not required, LA2Xi powers a stereo pair of elegant Syva and Syva Low colinear source loudspeakers. Bridge LA2Xi to 4 x 2 mode and it handily powers A10i and A15i medium-throw line sources or KS21i subwoofers with a robust 1260

W per channel. In 4 x 3 configurations, it can drive a pair of X8 reference monitors with a SB15m subwoofer. Bridging all channels in 4 x 1 mode, it can power one KS28 reference subwoofer with an impressive 2550 W.

Packaged in a 1U chassis for optimized rack space, LA2Xi was tailored-made for integration applications. Underneath the streamlined front panel lies the same DSP engine as the flagship touring LA12X amplified controller, including features for loudspeaker management, protection and monitoring as well as a comprehensive set of tools for system adjustment and calibration.

Milan-certified, LA2Xi offers analog and AES inputs as well as AVB with seamless redundancy. The rear panel contains terminal connectors for AES and analog inputs, loudspeaker outputs as well as four GPIO and a 24 V DC backup power for the DSP card, enabling external control and monitoring, and ensuring fast recovery in case of power loss.

"We are proud to expand our amplified controller range, which is renowned for high performance and efficient amplification to the installation market," explains **Genio Kronauer**, Director of Electronics Development at L-Acoustics. "From the blank page through to launch, the LA2Xi has been honed to meet the needs and specifications of our installation partners. Its flexible input/output architecture makes it a powerful addition to our line-up."



# ACOUSTIC AND AUDIO SYSTEM DESIGN FOR SMALL ROOMS

## - PART 1

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



*Acoustic and audio system design for a “small room” can be extremely challenging, especially for critical listening applications like control rooms and reference home cinemas. It is vital to understand the relationship between system design and acoustics, and to accept that neither aspect can be designed in isolation without considering the needs and requirements of the other. In this six part educational series, we will outline many important “small room” design considerations and along the way demonstrate how to effectively tackle common acoustical and system design problems*

## Small Rooms

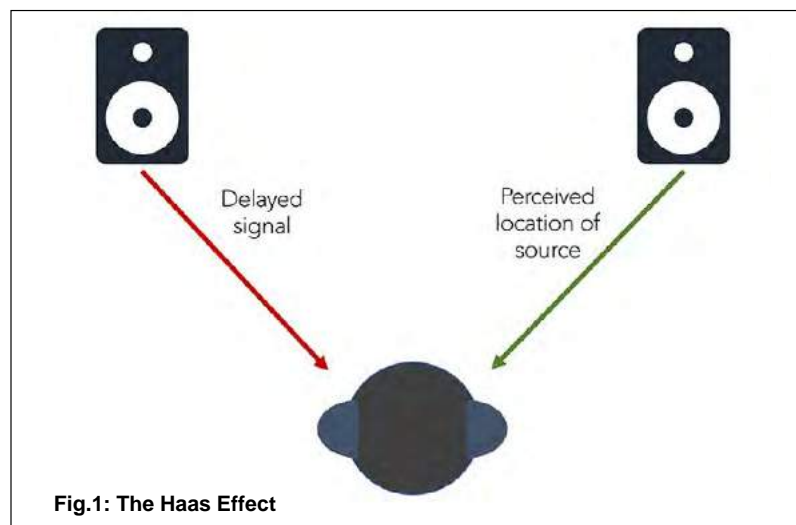
Let us start by defining a “small” room, firstly so that you aren’t utterly disappointed at the end of the series, and secondly because understanding the distinction between small and large rooms is the key to digesting the completely different design approaches to both. In an attempt to keep theory to a minimum, let’s just say that small rooms are those where the room boundaries are close enough to create modal issues in the lower frequencies. Extensive low frequency absorption is usually required, and since the first reflections of sound from room boundaries reach the listener extremely quickly, a great deal of care must be taken to prevent early reflections from colouring the direct signal. As a rule of thumb, a room whose largest dimension is under 20m or 65 ft can be considered to be a small room.

In the first part of this series, we will focus on three basic acoustic and psychoacoustic phenomena whose understanding are critical to effective design; the Haas effect, comb filtering and phase shift.

## Haas Effect

The simplest way to describe the Haas effect is through its other name, the precedence effect. If two sources of

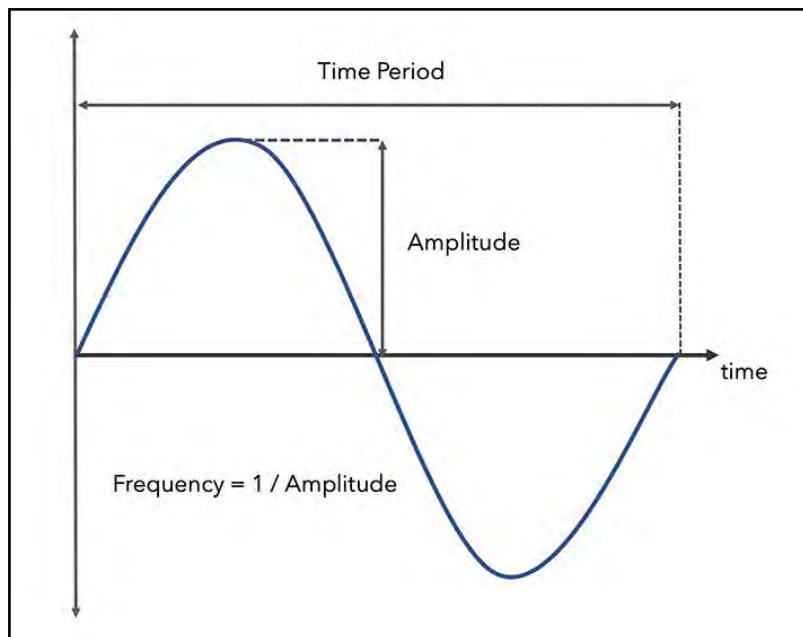
sound are separated in arrival time by less than approximately 40ms, they are perceived as one. Because of this, both sounds also appear to come from the





same location, which ends up being the physical location from which the first sound reaches your ears. Because of this powerful psychoacoustic phenomenon, your brain locks into this physical location, and it then becomes very difficult for your brain to reset and convince itself that there are in fact two separate sources of sound in

of the Haas effect in small rooms is straight forward; your brain is unable to separate the direct signal from early reflections because the arrival times are too close together! Why is this bad? The short answer is comb filtering, but the concept of phase shift needs to be understood before we open that can of worms.



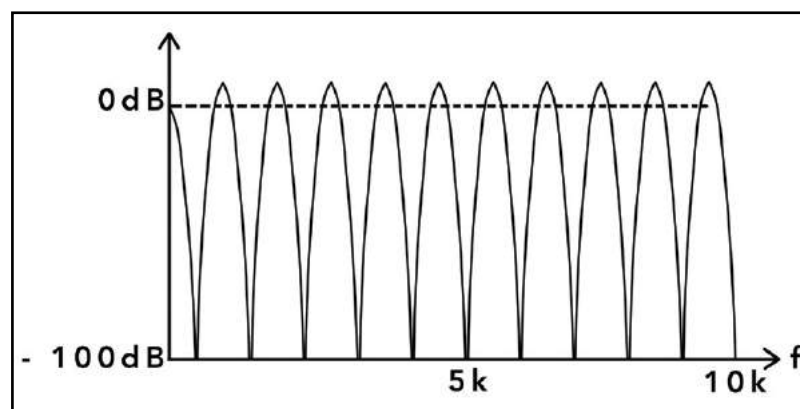
**Fig.2: Amplitude, Time Period and Frequency of a Wave**

different locations.

Either the level of one has to be reduced significantly, or it has to be delayed by over 40ms. The implication

## Phase Shift and Comb Filtering

As audio professionals, most of us are



**Fig.3: Comb**

aware that every audible (and inaudible) frequency has a corresponding wavelength. The time period defines the time it takes for one complete oscillation over that wavelength. While most audio signals are complex and never resemble a sine wave, we will still use one to illustrate our concept.

In the image below, two audio signals with the same amplitude (level), frequency response and wavelength BUT different arrival times have been added. Because of the different arrival times, the combination of constructive and destructive interference results in the "combing" you see in the image below. As you can imagine, this is not a desirable result.

The time delay created a phase shift in the wave, which combined

with the original signal. Thanks to the Haas effect, this is the resultant wave we hear in a room. We sometimes mistakenly attribute the resultant wave to the audio system alone, when in fact it is a combination of the room and source. The colouration affects the spectral content of the sound waves, which goes against the main design goal of any listening space – transparency. The solution is to create a reflection-free zone, both through acoustic treatment and/or angling the walls of the listening room. Stay tuned as we dive deeper into acoustic and audio system design considerations for "small" rooms!

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## MEYER SOUND INTRODUCES ULTR A-X20 LOUDSPEAKER ... (Continued from page 11)

offers equivalent output power and — thanks to the new coaxial design — much more consistent pattern control below the crossover point."

The ULTRA-X20 can be ordered with any one of three connector panel options. The two AC powered versions both have looping Powercon connectors with choice of 3-pin XLR for audio or 5-pin XLR for audio and RMS remote monitoring. Another version is offered for integration in IntelligentDC systems (audio and remote DC powering on a single cable) with a 5-pin Phoenix connector.

Two additional variants are offered, identical except for the patterns of the rotatable horn: ULTRA-X22 (80°x 50°) and ULTRA-X23 (110°x 110°).

Transport, mounting and rigging options are offered for every conceivable application. A carry handle is standard but easily removable. Two integral M8 rigging points on each end enable use of a pole mount, single point hang,

wall or ceiling mounting, or yoke mount in horizontal or vertical orientation at any angle. Four additional M6 points on the heatsink are compatible with most industry-standard wall mount brackets. A weather protected version is available with sealed connectors that eliminate the need for rain hoods.

For extended low frequency power, the ULTRA-X20 may be paired with the new USW-112P subwoofer, the 750-LFC low-frequency control element or USW-210P subwoofer. The ULTRA-X20

is natively aligned with the 750-LFC to maximize ease of use in portable applications to allow rapid deployment with minimal effort.

### USW-112P Subwoofer

The USW-112P compact subwoofer packs robust low frequency performance into a slender, self-powered package measuring less than 12" / 30 cm deep. The slanted connector panel allows placement flush to walls, in vertical or horizontal orientation, making the USW-112P an ideal choice when stage or installation space is limited.

The USW-112P houses a single 12" long-excursion driver along with a highly efficient class D amplifier and advanced digital signal processing. The cabinet design features a low velocity port, based on the USW-210P, with optimized tuning for linear response and low distortion. Preliminary performance specifications include a linear peak output (measured with M-Noise signal) of 123 dB SPL across an operating frequency range of 35 Hz to 140 Hz. Phase response measures  $\pm 30^\circ$  from 45 Hz to 120 Hz. The subwoofer measures

23.50" / 59 cm high by 13.50" / 34.3 cm wide x 11.95" / 30 cm deep. Weight is 47 pounds / 21.3 kg.

Versions of the USW-112P are offered with either direct AC powering or for integration into systems using IntelligentDC, Meyer Sound's technology for supplying both DC power and audio from a remote, rack-mount unit over a single cable. Optional facilities also are offered for Meyer Sound's RMS system for comprehensive remote monitoring.

The USW-112P is supplied standard with a removable carry handle and M8 rigging points on the top and bottom. A side-mounted, 35mm/M20 thread pole mount receptacle is available as an option. Using an M20 to M8 thread adapter, the USW-112P can be flown from a single eyebolt. An optional U-bracket facilitates mounting to a truss, ceiling or wall. A weather protected version uses sealed connectors (IP-X4 or higher rating), eliminating the need for rain hoods.

"The USW-112P is an extraordinarily versatile subwoofer," says Espinosa. "With its shallow footprint and light weight, it can go anywhere and fit anywhere, from churches and clubs to restaurants and small theatres."



**ULTRA-X20 Loudspeaker**

**USW-112P Subwoofer**

# Studio Monitors

## JBL 104 Compact Reference Monitors

The JBL One Series 104 reference monitors give content creators the ability to hear all the details for better results while mixing and editing. These monitors are ideal for recording musicians, podcasters, and music and video producers. JBL 104s combine powerful 4.5-inch (118 mm) low-frequency drivers with coaxial .75-inch (19 mm) soft-dome tweeters, potent 60-watt amplification, and innovative acoustic design to provide exceptional imaging, neutral frequency response, and crisp detail. With their sleek, elegant design and compact form factor, they make a stunning statement in any home or pro studio.

### Main Features include:

- Coaxial 4.5-inch (118 mm) LF driver and .75-inch (19 mm) soft-dome HF driver
- Contoured low-frequency port
- Integrated 60-watt Class D power amplifier; 30 watts distributed to each speaker
- Acoustically optimized for desktop placement
- Three sets of inputs allow connection with professional equipment, personal music players and consumer products
- Front-panel volume control
- Front-panel headphone jack with speaker mute feature

### Technical Specification:

- Lf Transducer: 4.5 in (118 Mm)
- Hf Transducer: 0.75 in (19 Mm), Soft Dome
- Crossover: 1725 Hz, 1st Order
- Power Amp: 60 W (30 W Each Speaker), Class D
- Sensitivity: 88 Db Spl @ 1 M With -10 Dbv Aux in (Volume = Max)
- System Maximum Spl: 92 Db (Continuous Power Measured)



- System Peak Spl: 102 Db (Pink Noise, 12 Db Crest Factor)
- Maximum Spl, Momentary Peak: 104 Db
- Maximum Peak Input Level (-10 Dbv / +4 Dbv): +6 Dbv / +20.3 Dbv
- Frequency Range (-10 Db Spl): 60 Hz – 20 KHz
- Signal To Noise Ratio: 75 Dba (A-Weighted), 70 Dbr (Unweighted), Relative to 2.83 Vrms Output On Hf
- Coverage (Horizontal X Vertical): 120° X 60°
- Ac Input Voltage: 100 – 240 Vac (± 10%), 50 / 60 Hz
- Current Draw: 85 Watts
- Dimension (H X W X D): 9.72 in (247 mm) X 6.02 in (153 mm) X 4.88 in (124 mm)
- Net Weight: Master Monitor: 4.54 lb (2.06 Kg); Slave Monitor: 3.81 lb (1.73 Kg)
- Enclosure Type: Ported
- Audio Output Connectors: 1 X 3.5 Mm (1/8") Stereo Headphone with Auto Speaker Mute
- Audio Input Connectors: 2 X 1/4-Inch (6.5 Mm) Balanced (+4 Dbv); 2 X Rca (-10 Dbv); 1 X 1/8-Inch (3.5 Mm) Unbalanced (-10 Dbv)

## Sonodyne PM Series

The PM Series are professional active loudspeakers for the producing musician. In home or project studios, for tracking and for mixing, the PM 50 and 100 are ideal.

The enclosure is heavily braced double MDF panels. The integrated isolation base minimizes residual vibrations. The custom PP cone woofers and the silk dome tweeters are tested to the limit so that they retain fidelity at high SPLs. The Class AB bi-amplifier is reliable and efficient providing 45 W + 45 W for the PM 50 and 80 W + 50 W for the PM 100. On board features include EQ tilts for highs and lows, and level control. Whether ideating, recording, or editing, the PM is an excellent production speaker.

### Main Features include:

#### The PM 50 features

- 5.25" PP cone woofer and 1" silk dome tweeter.
- Internally powered at 100W (LF: 50W, HF: 50W) it delivers 104dB.
- The highs are open and transparent, mids are detailed, and the bass is tight.
- Inserts in the base allow for mounting.

The PM 50 is thus ideal not only for near-field monitoring for music but also for multichannel applications.



PM 100:

#### The PM 100 features

- 6.5" injected PP cone woofer and 1" silk dome tweeter.
- Internally powered at 130W (LF: 80W, HF: 50W) it delivers 107dB.
- The mids and highs are clear and detailed; the bottom end extends to 50Hz providing a tight and warm LF response.
- Inserts on the base allow for mounting.

The PM 100 is thus ideal not only for near-field monitoring for music but also for multichannel applications.

#### Technical Specification: (PM 50 / PM 100)

- Description: Bi-amplified Studio Monitor
- Enclosure: Heavily braced MDF, vented
- Transducer Complements: HF Neodymium magnet 1" silk dome tweeter
- Transducer Complements: LF 1 x 5.25" injected PP cone woofer / 1 x 6.5" injected PP cone woofer
- Amplifier Type: Class AB
- Amplifier Power before Clipping: LF: 45 W, HF: 45 W / LF: 80 W, HF: 50 W
- Amplifier THD at Rated Power: < 0.04%
- Max SPL @ 1M: 104 dB / 107 dB





**Studio Monitors** are loudspeakers that are designed for professional audio applications like recording studios, and home studios. With varying features and performance levels, to decide which studio monitor is best to choose from becomes tricky.

Following is the list of Studio Monitors launched in 2019 to make the choice easy.

- Overall Frequency Response: (+/-2 dB) 75 Hz ~ 20 kHz/65 Hz ~ 20 kHz
- Usable Frequency Range: (-10 dB) 65 Hz ~ 22 kHz/55 Hz ~ 22 kHz
- Crossover Frequency: 2.5 kHz
- Input Level for 90 dB SPL @ 1M: 0 dBu
- Controls – Rear: Power, Volume, EQs
- Protection: Overcurrent, Overheat, RFI,
- Indicator: Power On / Off
- High Shelving EQ: -2 dB @ 15 kHz
- Low Shelving EQ: -2, -4, -6 dB @ 80 Hz
- Signal to Noise Ratio (At Unity Gain): > 90 dB (at full output)
- Colors: Black
- Dimensions (HxWxD) mm: 306 x 194 x 235/332 x 220 x 262
- Power Consumption PM : 100 VA Max/200 VA Max
- Power Requirement PM: Two versions: 230 V AC and 120 V AC, +/- 10%

### Focal Trio 11Be

The Trio 11Be is a double monitor designed for nearfield and midfield applications as well as new speaker drivers with high efficiency and power handling. It delivers a high SPL (118dB at 1m) and offers a great versatility of use. With an extended bandwidth (30 Hz-40 kHz), this loudspeaker is also composed of a 3-way monitor and a 2-way monitor.

#### Main Features include:

- High SPL: 118 dB @ 393/8" (1m).
- FOCUS Mode: two monitors in one with remote switchover.
- Pure Beryllium inverted dome tweeter: very low directivity, linearity, and dynamics.
- 'W' composite sandwich cone on woofer and subwoofer: neutral sound, no distortion.
- Bass, mid-bass and treble settings on rear panel: optimum acoustical integration.
- Optimized decoupling of the midrange speaker driver thanks to silent blocks.
- Ultra-low distortion and noise.
- Rotating mid-treble plate: can be positioned horizontally or vertically

#### Technical Specification:

- Frequency response: 3-way mode 30Hz - 40kHz (+/- 3dB)  
2-way mode (Focus) 90Hz - 20kHz (+/- 3dB)
- Maximum SPL 3-way mode 118dB (peak @ 1m)  
2-way mode (Focus) 105dB (peak @ 1m)
- Inputs Type/Impedance Electronically balanced / 10KOhms  
Connectors: XLR



- Sensitivity: Adaptable, +4 dBu or -10 dBv
- Bass: 300W, class G
- Midrange: 150W, class G
- Treble: 100W, class AB
- Power supply Local supply 230V (1.6A T fuse) - 115V (3.5A T fuse)  
Wiring: Connection Detachable IEC inlet power cord
- Indicators and controls: Rear panel Input sensitivity selector (+4dBu/-10dBV)
- Low frequency shelving (+/- 3dB from 35 to 250Hz)  
High frequency shelving (+/- 3dB from 4.5 to 40kHz)
- Low-mid EQ frequencies (+/- 3dB to 160Hz, Q factor = 1)  
FOCUS input / FOCUS output
- LED: Focus power on, clipping and default LED: on front panel
- Subwoofer: 10W96701D  
Focal 913/16" (25cm) speaker driver with 'W' composite sandwich cone
- Construction: 13/16 and 1<sup>3/16</sup>" (21mm and 30mm) panels with internal Braces
- Finish Natural veneering side panels Dark red burr ash, black Body
- Dimensions with four rubber feet 25" x 139/16" x 173/4" (635 x 345 x 450mm) (HxDxW)
- Weight: 82.2lbs (37.3kg)

### Fluid Audio FX80

The FX80 coaxial studio monitor offers a wide frequency response in a space-saving enclosure. Keeping true to the original "keyhole" design, the FX enclosure has been updated with a complex radius front baffle, to improve cabinet defraction. Mounted in the center of the woofer is a 30mm silk dome tweeter in a coaxial configuration. Using this technology makes it a "point source" device, allowing all the sound to emanate from a single point improving off-axis response.

#### Main Features include:

- Contoured baffle enclosure design to improve cabinet defraction
- 30mm silk dome tweeter in a coaxial configuration
- Boundary compensation DIP switches
- Class-D amplification and standalone powerful DSP integration
- Illuminated LED on the front panel
- Front-loaded slot port design
- Updated Tweeter Grille protection

#### Technical Specification:

- Frequency response: 35Hz-22kHz (+/- 3dB)
- Configuration: 2-way Coax
- System Type: Active Studio Monitor
- Woofer: 8" paper pulp composite cone
- Tweeter: 1.2" Soft Dome
- Crossover frequency: 2.4kHz
- Low-frequency amplifier power: 60 watts
- High-frequency amplifier power: 50 watts
- Signal-to-noise: 90dB (typical A-weighted)
- System Volume: -30dB to +6dB
- Polarity: Positive signal at + input produces outward LF one displacement
- Size (single monitor): 340\*254\*295 / 13.4\*10\*11.6
- Weight (each): 7.8 kg / 17.2 lbs



## Genelec 4430

The 4430 is a two-way active installation loudspeaker, that accepts both Dante and AES67 IP audio streams, and derives power via both PoE and PoE+ Power-over-Ethernet formats. Through its Smart IP technology, integrators can streamline audio system installations using a single category cable. The 4430A is designed for indoor use..

### Main Features include:

- Compatibility with both Dante and AES67 IP streams
- PoE+ technology
- Smart IP Manager software with device discovery
- Capacity for virtually unlimited rooms, zones, loudspeakers and audio channels
- Uncompressed, low latency audio with sub-microsecond synchronization
- Support of eight audio channels with sample rates of 32 – 96 kilohertz and 16 – 24 bit resolution
- 5-inch woofer and 3/4 inch metal dome tweeter
- Class D power amplifiers, one for each driver

### Technical Specification:

- Lower cut-off frequency, -6dB:  $\leq 45$  Hz
- Upper cut-off frequency, -6dB:  $> 39$  kHz
- Frequency response within  $\pm 1.5$  dB 58 Hz – 20 kHz
- Minimum delay from analogue input to acoustic Output : 2.3 ms
- Short term max SPL:  $\geq 104$  dB SPL
- Long term max SPL:  $\geq 96$  dB SPL
- Maximum peak acoustic output per unit at 1 m, using PoE+ power:  $> 107$  dB SPL
- Dispersion angle (degrees), horizontal:  $120^\circ$
- Dispersion angle (degrees), vertical:  $100^\circ$
- Amplifier Power: 50W Bass (Class D) + 50W Treble (Class D)
- Bass driver: 130 mm (5 in) cone
- Treble driver: 19 mm (3/4 in) metal dome
- Weight: 5.1 kg
- Height: 285 mm (11 1/4 in)
- Width: 189 mm (7 7/16 in)
- Depth: 178 mm (7 in)
- Enclosure Material: Die cast aluminum
- Enclosure Type : Reflex port



## Dynaudio Core Series

The Dynaudio Core Series professional reference monitors are the flagship monitor in the Dynaudio's high-end professional reference series. Featuring state-of-the-art Class D amplification, cutting-edge DSP, the Core Series delivers flat and accurate response. Dynaudio's latest Esotar Pro HF driver provides hours of pinpoint imaging detail without the listening fatigue. The series comprises of Core 59, Core 47, Core 7, and Core Sub.

### Main Features include:

- Esotar Pro Tweeters
- Breathtaking accuracy
- Front-loaded bass reflex cabinet design
- All drivers handcrafted by Dynaudio in Denmark
- Core DSP optimizes imaging, balance, and bass extension
- Analog and digital inputs
- Sampling rate: 192kHz, resolution: 64-bit; dependent on the input signal

### Technical Specification:

- Tweeter: 1in
- Midrange: 5in
- Woofer: 9in
- Inputs: Analogue and AES3 digital inputs
- Maximum 24-bit/192 kHz: Depending on input signal
- Maximum SPL: 112 dB @ 1 m anechoic, 118 dB half space
- Crossover Frequency: 385 Hz (LF/MF) / 5000 Hz (MF/HF)
- Frequency Response: 36 Hz – 31 kHz -6 dB
- Frequency Response: 42 Hz – 27 kHz +/- 3 dB
- Principle: Front-loaded bass reflex
- Amplifiers: Pascal Class-D. HF 150 W/MR 500 W/LF 500 W
- Dimensions (WxDxH): 280 x 380 x 550 mm (11 x 15 x 21 11/16in)
- Weight: 24.6 kg (54.2 lb)



## Tannoy Gold Series

Tannoy Gold nearfield reference monitors have been created to serve the demanding needs of professionals in recording, broadcast, and post-production environments. Engineered to the highest standards and build quality, the Gold Series impresses whether a seasoned Tannoy user or just taking the first step up to a monitor system based on the legendary Dual Concentric driver.

The Gold Series comprises of three models: the Gold 5 that features a 5" mid/bass driver, the Gold 7 with a 6.5" and the Gold 8 with an 8". Each loudspeaker's incoming signal is divided up by a powered crossover before it is sent to two Class A/B amplifiers – one for the tweeter, one for the mid/bass driver – for a total of 200 watts in the Gold 5, 300 watts in the Gold 7, and 300 watts in the Gold 8.

### Main Features include:

- Precise and neutral soundstage
- Dual Concentric driver technology
- Front-firing bass port
- Titanium tweeter with Tulip waveguide
- Class-AB system
- Transducer-matched LF and HF bi-amplification
- Dedicated input trim, bass and treble controls
- Selectable automatic standby mode

### Technical Specification:

- Maximum Output Power: 300W
- Amplifier Type: Bi Amp via Class-AB
- Maximum SPL: 110 dB
- Transducers: Dual Concentric with titanium twitter & Tulip Waveguide, 1 x 8" (203 mm) LF driver
- Nominal Dispersion:  $90^\circ$  conical @ -6 dB point
- Frequency Response: 54 Hz – 20 kHz  $\pm 3$  dB
- Limiter: Independent high and low frequency limiters
- Inputs: 1 x XLR, balanced 1 x 1/4" TRS, balanced 3.5 mm stereo mini jack
- User controls: Power on/off, Input trim, HF trim, Bass adjustment, Auto-standby on/of



# TRANSFORMATION OF STUDIO RECORDING INDUSTRY IN INDIA

**1** 9th century is known for the miraculous revolutions that have been remembered till date. The intervention of sound reproduction in the late 19th century can be considered as one of the biggest examples of these revolutions. It is believed that since the intervention of sound reproduction, studio practices in musical recording evolved alongside with technological advancements.

The intervention of technology has made a significant effect on the entire studio ecosystem. Studios and modern engineering became a major influence on the way music was shaped during the 1960s when musicians' and producers began to use the technology that was available to them in a creative manner. It was also during this period that musicians became not only consumers of musical gadgets, but patrons of engineering technology. The increase in studio technology allowed one person to enter a studio, to understand how to use various pieces of technology and leave with a finished piece of music. With time the music producing technology has been changed as well as the methods of recording has also got transformed.

In recent time, digital technology and internet file-sharing has led to



delocalization of professional recording studios. It is considered that the technique which is known as Electrical recording was first introduced by the end of World War. This technique enabled the amplification of microphone signals, together with playback on loudspeakers. Over the last 75 years, Sennheiser has been at the forefront of shaping the future of audio with its innovative range of products. It has consistently raised the bar with the superior audio experiences, especially, in studio recording.

During 1920, the evolution of electrical recording inspired the recording industry to create higher-quality recordings that saved increased attention for the listeners. The recording techniques allowed the users to experience natural

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

room echo while placing the microphones away from the original sources. The IFPI report, the recording industry worldwide, found in a recent survey that Indian consumers spend 21.58 hours per week listening to music, higher than the global average of 17.89 hours per week – clearly making India a music-loving country.<sup>1</sup> The report also shows that the recording industry worldwide, India, currently ranked 15th in the world, is well-positioned to break into the top 10 music markets by 2022.<sup>2</sup>

Gradually, the valuation of studio ecosystem has gone through so many changes with the help of significant technology. The devices, gadgets and editing software become more advanced and special with time. This great combination has underwritten to improving the entire audio and music experience for creators and audience as well. Considering the need of the entire ecosystem of the studio including the growing audience, professional artists, and creators, it becomes important for brands to produce more products, equipment and technologies that contribute to their music creating process to make it more consumable.

During any recording in the studio, even a minimal sound can completely change the output. Hence, at Sennheiser, we have products that are effective

and help maximize the in-studio performance. We have an extensive range of offerings specific only to studio recording needs. Our Neumann studio equipment such as Neuman KH750 DSP, KH 420 tri-amplified midfield studio monitor, NDH 20 monitoring headphones, and U87 microphone have been created while understanding the need of the

consumers.

KH 750 DSP Compact DSP-controlled closed cabinet subwoofer, particularly suitable for small rooms, can be operated with the small Neumann KH 80 DSP studio monitors, but of course also with other loudspeaker systems. The sound in the closed housing is produced by a long-stroke driver with a diameter of 10", a DSP helps to optimize the sound output. In addition to this, KH 420 G-Powerful tri-amplified midfield studio monitor is a high-precision dispersion with tremendous sound level reserves which is designed for a working distance of 1.5 to 3 m (5' to 9'). It handles the space effortlessly thanks to great power reserves and precisely concentrated dispersion. Even in diverse acoustical environments the KH 420 G remains neutral and clear in every detail down to the subtlest nuances. In addition to these two products, Neuman NDH 20- STUDIO GRADE MONITORIN is a high quality headphones that are created to balance the sound quality as per the critical listening experiences against other aspects that are necessary in a studio setting, like comfort, isolation and ease of maintenance., and U87-AI Studio Set microphone are known as most widely used product for over 50 years and are a perfect amalgamation of linearity and classic Neuman engineering.

With the emergence of the latest technology, consistently increasing music-taste and digitalization of platforms have increased the growth possibilities of studio ecosystem in the coming decade and there are chances that the studio recording segment will see considerable growth and evolution. This will automatically boost the demand for superior professional equipment with revolutionized technology while giving us a motivation to produce/innovate such ground-breaking technology.

<sup>1</sup> <https://www.musicplus.in/indian-recorded-music-industry-major-growth-driver-revenues/>

<sup>2</sup> <https://www.livemint.com/industry/media/indian-music-industry-grows-24-5-in-2018-1554215051388.html>



Vipin Pungalia (centre) addressing visitors at a Trade Show

# SEQUENCE OF STEPS TO FOLLOW ON RESUMING STUDIO OPERATIONS POST AN EXTENDED DURATION OF SHUTDOWN

*Munro Acoustics India has put together a suggestion/ guideline document after consulting many studios and engineers across the world to aid their clients in the Indian Subcontinent, Middle East and SE Asia.*

*PT has featured the same for the benefit of the industry.*

*Munro Acoustics India or PT will not be held responsible for any mishap/ accident/injury caused using the guidelines and steps mentioned in this article on resuming Studio Operations.*



**Article by: Kapil Thirwani, MIOA, MSc Audio Acoustics, BEng Electronics; info@munro.co.in**

## Electrical:

- Ensure all the MCBs in your Distribution Box are in the OFF position.
- Ensure all the switches, power outlets etc. in the premises are in the OFF position.
- Switch ON the mains to the Distribution Box.
- Switch ON only the lighting load MCBs.
- Sequentially switch ON all lights in the premises. Keep an eye out for flickering lights or any light that fails to turn ON (turn OFF the switch for all flickering/non-functioning lights and circuits).
- Switch ON the Raw-Power MCBs in the Distribution Box.
- Check the PHASE-NEUTRAL voltage at various raw power outlets using a AC Multi-meter (it should be fairly stable and around 230V (+/-5V)).
- Check the PHASE-GROUND voltage (it should be similar to the above)
- Finally check the NEUTRAL-GROUND voltage (it should be preferably below 2V).
- In the event of an extremely high/ low or severely unstable voltage reading, avoid turning on any equipment and get it checked by your electrician at the earliest.
- Switch ON the Refrigerator and allow it to stabilise (preferably 24hrs, but 3-4 hrs minimum).
- Switch on the UPS and check for any error LEDs or beeps...allow it to stabilise (the batteries usually take about 12-18hrs to charge, depending on the residual charge left, but the UPS



display will indicate when it is safe to operate).

## HVAC:

- Clean the Air Filters of all HVAC units. (High wall units have these in their indoor units, for Ducted systems please call your HVAC serviceman).
- Switch ON the MCBs for the HVAC units from the Distribution box.
- Switch ON each HVAC unit one at a time allowing a minimum of 30mins of operation before switching on the next unit.
- Schedule HVAC servicing as early as possible.

## Cleaning and powering up equipment:

- Clean the Rack mounted/Standalone gear, Computers, Screens, Televisions and Speaker Monitors gently with dry microfibre cloth.
- In humid areas, dust may collect as grime over surfaces. Use Isopropyl Alcohol (I.P.) on microfibre cloth to clean this.

*(Please Note Isopropyl Alcohol (I.P.) may wipe out the paint, labels, words printed on the equipment, cover it with masking tape or transparent tape before applying any I.P.)*

- Clean the cables with I.P. and cloth.
- Clean the Monitor speaker's drivers and surface with I.P. soaked cloth gently. (Use dry cloth on paper cones).

## Follow the below steps to turn on your Studio Equipment sequentially:

- Before Powering up the equipment switch ON a dehumidifier and AC (Dry Mode) and run it for at least 8hrs.
- After 8 hrs switch on the Computer and run it on the UPS for the 1st day (Do not turn on your Monitors).
- Post ensuring stable operation of all devices for a Day, you can switch on the Monitor speakers.
- Switch on the equipment one by one.
- Switch off any device that seems to be operating abnormally, and have it checked by the service agency.
- Let all equipment remain switched on for at least an hour before running audio.
- Run the audio signal test check the inputs and outputs levels.

## Protecting & Cleaning Microphones:

To reduce the risk of spreading diseases through bacteria and viruses, one or more remedies, explained in detail below, may be used:

- Ideally, have one microphone per user (including the accessories).
- Clean all surfaces, i.e. microphone

housings, head baskets and accessories, both before and after use.

- Leave the microphone unused for some time.
- Utilise separate accessories such as windshields to add protection.
- Use of hand sanitiser installed on mic stand simultaneously is encouraged like shown below.

For cleaning microphone housings from any soiling, including human exhalations, you may use ethyl alcohol (ethanol) or isopropyl alcohol (Isopropyl/I.P.). Used as a disinfectant, typically a 70% solution is used. Apply with a disposable soft cloth, a soft brush or paper tissue. Make sure that the liquid is applied only to the outside of the microphone and does not enter the inside or the capsule.

*(Please Note Isopropyl Alcohol (I.P.) may wipe out the paint, labels, words printed on the equipment, cover it with masking tape or transparent tape before applying any I.P.)*





- Do not use rough materials which might scratch the surface. Do not use any solvents stronger than ethanol or isopropanol (I.P.), as these might damage the surface.
- Never use sprays, as these can deposit on the membrane and thus damage the microphone capsule.
- With some microphones, the head basket can be easily removed for cleaning. Make sure not to touch or damage the capsule.
- With the head baskets containing foam windshields, remove the inner foam and clean it separately.
- Metal head baskets may also be cleaned on the inside with ethanol or isopropanol.
- Not using a microphone for a minimum of 6 hours, before using for another artiste, will significantly reduce the possibility of any infection deposited on the metal surfaces. For plastic or cloth accessories, an extended period of 48 hours or more is needed to achieve similar results.

### General Work Ethic suggestions based on many Studios Operational Internationally:

- Work with two Staff teams (A&B) if

- possible on a weekly basis.
- Avoid using public transport (when operational) to get to the studios, or home from the studio.
- If clients are feeling unwell on the day of the session or are exhibiting any signs associated with COVID19 they should not attend the session and contact the studio immediately. Please don't hesitate to check body temperatures via non-contact thermometers of anyone entering the studio premise for safety's sake.
- Reception and communal areas should be marked at 2m intervals to encourage social distancing. Corridors to be clearly marked to state that only one person should use them at a time.
- Hand sanitising points should be set up in reception areas and in studio control rooms with clear signage encouraging their use upon entry and exit. Hand sanitiser and liquid soap dispensers to be readily available at all times in bathrooms.
- Kitchen facilities only to be used by staff team (i.e. no food preparation to be done by clients, all refreshments and use of microwave to be done by staff) and clearly marked as such. Clients to bring their own food and water where possible. Signage

- reminding staff to wipe down kitchen touch points (i.e. kettle handles/ coffee machines/microwaves) to be clearly displayed and antibacterial spray provided for this.
- Where there are multiple studios in one building, a separate toilet / bathroom to be allocated to each studio and clearly indicated with prominently visible signage.
- Session start times to be staggered whenever possible on premises with multiple studios. Studios should reserve the right to install additional security on the main entrance. This will help with managing kitchen and bathroom areas as well as corridors.
- Studio should promote unattended remote sessions wherever possible, else limit the number of people attending sessions to the absolute minimum (2 for 10/12 sq.m., 3 for 12/15 sq.m. etc.) in order to minimize the number of people passing through the studios. All attendees' names and contact details to be provided before the session during the booking. Only those on the booking form will be allowed access to the building. Non-essential parties to join via Skype/Zoom/Google Hangouts.
- All staff must be briefed thoroughly

- on hygiene and cleanliness and the increased need to uphold this throughout the studios and in communal areas. Engineers and assistants to commit to washing their hands at regular intervals, particularly when entering, or re-entering premise after phone/toilet/smoking breaks.
- 'Deep clean' intensive cleaning organised with government/health agency approved cleaning partners with a focus on anti-bacterial coverage on all touch-points.
- Alcohol wipes to be available in communal areas and in studios for wiping down of touch-points/door handles/ light switches before use and at regular intervals. Clients are encouraged to bring their own keyboard/mouse/ phone & laptop chargers to use in the studio, if preferred.
- Staff who are asked to do food runs by clients should not handle cash – payments should be made by card/ online only.
- All staff members to adhere to the government guidelines of isolating themselves for 14 days if they are experiencing a fever or cough, and to inform the studio immediately if this occurs. Any artist or client displaying symptoms to refrain from visiting the studio.



*Presents*

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Top Notch  
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Moderate Cost  
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### Key Features:

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- Cardioid handheld microphone with easy-to-read LED display and independent volume control.
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- Unique license band for interference free sound
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## ELATION DEBUTS ARTISTE REMBRANDT LED WASH

Elation Professional has added to its Artiste range of high performance moving heads, the **Artiste Rembrandt LED Wash**. With superior output, unmatched color and a package of design options that includes an innovative wash texture concept, the Artiste Rembrandt is designed for service on even the largest stage.

The Artiste Rembrandt's Fresnel lens optics and hotspot LED engine provide an optimized wash field and high center intensity that make it an ideal wash solution for high output applications. This robust moving head uses 950W 6,500K Bright White LED engine to power out up to 51,000 lumens of

superior wash output. With a fast zoom range from 8° to 72° and an impressive 180mm front lens, the Rembrandt has the power to cut through at even great distances in arena touring environments or large TV or theater stages.

The Artiste Rembrandt houses the 7-flag SpectraColor color mixing system as the Artiste Monet. Exclusive to Elation Professional, SpectraColor combines industry-standard CMY color mixing with complementary RGB flags for the ability to fade between the softest pastels to deep saturated primary colors. With the addition of variable CTO, as well as a fixed color wheel with UV and high CRI options, the Rembrandt offers the

color combinations that world-class lighting designers require.

The Rembrandt also incorporates an innovative wash texture concept that gives the designer new tools to wash stages while providing soft textures and depth. Two independent animation wheels allow for directional motion, including overlapping and counter-rotating motion effects for texturing and layering possibilities that are unique to the fixture. The fixture also houses dual variable frosts (medium, heavy) for even more flexibility and a high-speed iris can be engaged for further impression.



## ADJ INTRODUCES NEXT GENERATION LED VIDEO PANELS

ADJ has introduced the **Vision Series**, the next generation of LED video panels. The new 'VS' Vision Series of LED video panels offers a versatile modular solution that has been developed to make life easier for video professionals installing LED walls on either a temporary or permanent basis. Each panel in the range features four individual modules, which are front serviceable, making it ideal for temporary hang-

density), the **VS3** has a 3.91mm pixel pitch (128 x 128 pixel density) and the **VS2** offers the highest resolution in the range with a 2.97mm pixel pitch (168 x 168 pixel density). All three panels utilize 3-in-1 RGB SMD2121 LEDs with a brightness of 1000 NITS and a very high refresh rate of 3840Hz. They offer a wide viewing angle of 160° (horizontal) / 140° (vertical) and a high contrast ratio of 5000:1, allowing for the delivery of exceptionally vibrant video reproduction.

and lightweight (17 lbs. / 7.7kg.) panels extremely easy to carry and rig.

The VS Series is completed by a range of accessories that can all be used interchangeably with any of the panels in the range. The **VS RB1** is an intelligently-designed rigging bar that can be used to vertically hang or ground stack up to 20 VS panels. The **VS RQR** is a convenient 'quick rig' attachment that fits to the rear of any Vision Series panel so that it can be fastened directly to a 2"

has also been created specifically for protecting and transporting up to eight Vision Series LED panels. The robust wheeled road trunk features eight padded slots for the panels, a hinged lid that locks in place using two butterfly catches, a rubber bumper strip that runs around all four sides of the case, and two recessed bar handles on either end. It also features a useful clear plastic window that runs down one side, allowing users to easily identify how many panels are stored in a case without opening the lid.

"ADJ video panels are now used worldwide, installed permanently in churches, nightclubs and entertainment centers, and utilized by production companies working on all kinds of tours and one-off events. For the new Vision Series, we've combined everything that made the AV Series so popular – value, reliability and ease of use – while also addressing the feedback we've received from our

valued customers. Front serviceability is something that integrators often ask for, which we are pleased to offer throughout this new range, while the innovative magnetic rigging system offered by the Vision Series will make life a whole lot easier for our event production and touring customers," explains ADJ USA's National Sales Manager, **Alfred Gonzales**.



VS5



VS2



VS3

ing as well as permanent installation. Across the range, the modules are all mounted to the same frame, allowing panels of different resolutions to be used together.

Featuring the highest quality LED binning as well as bright, clear output, the VS Series features three panel models. The **VS5** offers a 5.95mm pixel pitch (84 x 84 pixel

All of the panels feature in-built articulated protectors which fold out from the back of the unit to provide protection to the corners – the parts of the panels most prone to damage – during transit. In addition, each panel also features a convenient recessed carry handle built-in to its top edge. This makes the compact (19.68" x 19.68" x 2.75" / 500mm x 500mm x 69.6mm)

pipe or truss. The **VSSCSB** is a support base that allows up to three VS panels to be mounted in a freestanding column, ideal for temporary digital signage applications. The **VSMRT** is a module removal tool that magnetically attaches to the front of Vision Series panels to aid technicians in removing modules from the front side when servicing.

A dedicated flight case, the **VSFC8**,



## OBSIDIAN CONTROL SYSTEMS ANNOUNCES ONYX 4.4 FEATURING DYLOS PIXEL COMPOSER

Obsidian Control Systems has announced the release of **ONYX 4.4** lighting control software, which fully integrates Obsidian's DYLOS pixel composer, opening up new possibilities for the creative designer. Integration of DYLOS into the ONYX platform brings an innovative toolset of media composition, effects, content, and text generators, along with a large variety of parameter manipulation, right into the core of any ONYX console or PC system.

### Create new ideas

Creative control with DYLOS offers the designer a diverse tool set to support the performance with organic color compositions and animations. DYLOS enhances

the design process and encourages playful experimentation rather than an overly technical and uninspiring approach of numbers and values.

console, offering seamless programming and playback through its optimized user interface of live previews, thumbnails, library and FX browsers,

collection, any custom user content can be imported at any time in almost any codec and size.

An unrestricted trial version of two DYLOS Zones and up to four Universes of DMX is enabled automatically for any ONYX PC installation and is a great way to experience the power of DYLOS in combination with the free content package. PC systems can be easily unlocked through the plug-and-play ONYX KEY, instantly expanding ONYX to



### Power and performance

Based on a full 3D environment and powerful DirectX graphics processing, the DYLOS engine has been designed for power and performance to manage tens of thousands of fixtures and parameters with ease. DYLOS is natively integrated into the operation of the

and dynamic parameter control.

### Free content package / unrestricted trial

As part of the launch, Obsidian Control Systems is offering users of DYLOS a carefully curated content package with over 1100 media files in many categories. In addition to this large media

128 Universes.

ONYX 4.4 is compatible with all ONYX NX4 and NX2 consoles, all ONYX PC systems and the M1HD and M2GOHD M-Series controllers. A variety of USB devices like the NX-Touch or NX-DMX are supported to customize and tailor the ONYX experience to any application.

## ADJ INTRODUCES ELEMENT ST HEX - COMPACT WIRELESS LED UPLIGHTER

ADJ has announced the availability of its most compact wireless LED uplighter to date, the new **Element ST HEX**. Building on the success of ADJ's popular Element Hex, the new model features powerful output, an extremely compact design as well as a full color touch screen display for extremely easy setup and DMX addressing.

Featuring four 6-Watt HEX (Red, Green, Blue, Amber, White + UV) LEDs the fixture offers smooth color mixing with an almost limitless palette. The inclusion of both amber and (cool) white LED elements means that it can be used to create white light with a wide variety of color temperatures. Meanwhile, the UV LED element not only allows for the creation of the classic 'blacklight' effect where white and fluorescent materials glow vividly, but it can also be combined with the other primary colors to create hues such as hot pink, electric purple and lime green that aren't possible using tri/quad color uplighters.

Although the fixture allows for full color mixing, through altering the intensity of all six of the primary LED color elements, it also comes pre-programmed with 63 built-in color macros. These allow for easy static color washing to be setup without the need for any external control and also help to speed up

DMX programming. In addition, the unit offers variable speed strobing (0.1Hz to 11Hz) and pulse effects, as well as 0-100% master dimming with a choice of five different dimming curves.

The internal fixed lithium battery with a capacity of 6.6AH (Amp Hours) sufficiently drives the LEDs for up to 15 hours using a single LED color on full brightness, which can be increased to as much as 25 hours using the lower intensity 'power saver' modes.

The unit also features an in-built ADJ WiFLY EXR (extended range) receiver that can be controlled via DMX wirelessly using a compatible control system. In addition, it also has an infrared sensor for use with ADJ's UC-IR remote, which is supplied with the fixture. This allows for simple control over basic features such as blackout and color macro

selection.

"The original Element HEX remains an extremely popular product," explains ADJ USA's National Sales Manager, **Alfred Gonzales**. "It's combination of 6-in-1 hex LEDs, long life rechargeable battery, in-built wireless

WiFLY DMX and robust, yet intuitively-designed, body makes it a popular choice for a wide variety of rental, production, décor and entertainment companies. However, with the continued advancements in LED and lithium battery technology, we are

pleased to now be able to offer the Element ST HEX as an even more compact option. Ideal for anyone looking for an extremely unobtrusive wireless wash fixture – as well as anyone with limited transport or storage space – the fixture also has the added advantage of a color touch screen that makes mode selection and DMX addressing easier than ever before."

As well as offering the Element ST HEX as an individual fixture, ADJ has also put together a package that combines four of the uplighters with an ADJ Airstream DMX Bridge. This bundle is known as the **Element ST HEX Bridge Pak** and provides an all-in-one uplighting solution that can be controlled from a tablet using ADJ's Airstream DMX APP.



ADJ Element ST HEX



Element ST HEX Bridge Pak

## PR LIGHTING LAUNCHES TWO CORROSION-RESISTANT VERSIONS OF IP66 MOVING HEADS

PR Lighting has announced two new IP66-rated outdoor moving heads that are both marine grade: the 3-in-1 AQUA Marine 580 BWS and AQUA Marine 580 Beam.

The double-layer special coating of the chassis, accompanied by PR's patent pending sealing system, makes both AQUA Marine 580 fixtures resistant to a wider range of corrosive media, making them ideal for use on projects close to the seashore or in sea water.

Housing either a Philips MSD Platinum 25 R lamp or Osram Sirius HRI 550W XL, both the **AQUA Marine 580 BWS** (PR-2596) and **AQUA Marine 580 Beam** (PR-2568) are fully featured. Col-

ors include CYM linear mixing system with macros, a color wheel with 12 color, Rainbow effect with bi-directional and variable speeds and Stepping/Linear color changing, while the color filters can be in any position. They also boast a linear CTO system.

The products accommodate one fixed gobo wheel (containing 17 gobos plus open), bi-directionally rotatable and shakeable at variable speeds. There is also a rotating gobo wheel, with seven interchangeable rotating gobos (plus open).

There are four different facet prisms, which can be overlapped. The graphic effect wheel can be overlapped with

the fixed and rotating gobo wheels. Features also include an independent frost filter.

Other functions include DMX linear focus and zoom; 0-100% dimmer (linearly adjustable); double shutter blade strobe (0.3-25 fps, random strobe). Head movement consists of 540° (pan), 270° (tilt), with auto position correction. AQUA Marine 580 BWS light angles are 0°-2° (Beam), 2°-40° (Spot) and 3°-50° (Wash). AQUA Marine 580 Beam has a dedicated 2° beam angle.

Ancillary features include Adjustable Pan & Tilt speeds; Lamp / Fixture hours displayed; RDM protocol; Optional



ArtNet; Optional wireless DMX512.

Both fixtures are contained in dust-proof and water-proof cast aluminium, high-temperature resistant and UV-resistant engineering plastic, with IP66 protection grade. They are marine grade corrosion and neutral salt spray resistant up to 1500 hours.

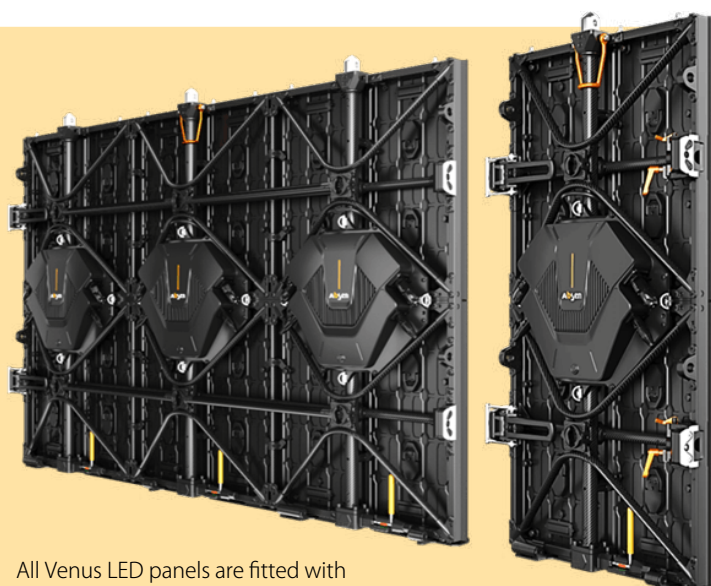
## ABSEN LAUNCHES VENUS LED SERIES

LED manufacturer Absen has announced the launch of a new super-lightweight touring solution for rental staggers at ISE 2020. The **Venus (VN) Series** is an innovative LED display that has been specifically designed for concerts and festivals due to its ability to create super-sized screens at speed. The product features a unique integrated 'module-on-frame' design. At 27.5 kg/sqm, it is the lightest integrated touring display solution on the market, allowing creative teams to cut back on weight, save cost and build even bigger LED walls – up to 20 metres in height.

The VN Series is far quicker to install thanks to its big cabinet size

(1500 x 1000) and fast locking system thereby saving on time. It is also easier to maintain and upgrade as the modules can be swiftly switched out without the need to take apart the frame structure.

The VN Series will be available in two standard sizes: 1,500mm (W) x 1,000mm (H) and 500mm x 1,000mm, in order to allow for fully customized options. It will be available in 3.9mm, 4.8mm and 8.3mm pixel pitch versions, boasting up to 5000 nits brightness and black face LED. The VN Series also allows for concave and convex curving options for highly creative video wall designs; with horizontal free-adjustable variances of -10 to +10 degrees, allowing fixed positioning at -10°, -5°, 0°, +5° and +10°.



All Venus LED panels are fitted with carbon fibre pipes with special anti-slip coatings to ensure the safety of climbers, with additional safety hooks so riggers can secure themselves at every step of the building process. The VN's easy

locking system with big-sized handles are simple to use even with thick gloves on, with color-coded lock/unlock markers and vertical auto-lock for an improved user experience.

The product can be easily hung, stacked, and transported, thanks to a 5-in-1 dolly system, which has been carefully calculated to allow two rows and three columns to fit in a 40HQ container, allowing for 315 sqm of LED panels per truck. Wind bracing is also available and can withstand gale force winds of up to level 8.

Amy Tang, VP of product at Absen, comments: "The VN has been designed with the customer in mind at every step of the way. Not only does the product deliver a visually stunning performance for punters, it is radically different to what is currently available on the market and will see customers save on costs, weight, and time, thanks to its unique module-on-frame design."

## ELATION SHIPPING FUZE SFX LED SPOT FX LUMINAIRE

Elation Fuze series is expanding the high-value line with the Fuze SFX, a new concept LED Spot FX moving head designed for a variety of applications requiring a compact and powerful multi-purpose luminaire.

The Fuze SFX is a unique combination of spot and effects fixture capable of projecting tight beams to wide washes using a highly efficient optical design while providing over 12,000 lumens of output from a 300W White LED engine. Unveiled at the LDI show in November, the fixture received an enthusiastic response and is now shipping.

The SFX allows for even stage washes

utilizing its variable frost filter while a wide array of beautiful colors is possible from a seamless CMY color-mixing system plus 7-position color wheel. Housing 18 carefully designed gobos and a 4.5° to 38° zoom, the Fuze SFX can create stunning mid-air FX as easily as precise image projections.

The Fuze SFX is powerful enough to use in all sizes of rigs and because it is remarkably silent can be utilized in noise sensitive environments like theatres, TV studios and houses of worship. It is outfitted with all the professional control features that designers should expect from a modern luminaire.





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## CLF LAUNCHES ODIN AND POSEIDON

CLF lighting announced the launch of the **CLF Odin** and the **CLF Poseidon** at the ISE 2020 in Amsterdam earlier this year.

### CLF Odin

The Odin combines cutting-edge LED technology, excellent light quality and a sturdy outdoor housing. Designed for high-demanding applications it comes with an outstanding optical system, which ensures even light and color projection. The fixture comes with a fast and accurate zoom function, which ranges from 11° to 50°. The IP65 rating makes it suitable for indoor and outdoor usage.

The RGB+Lime LED engine generates a rich color set, from vivid and saturated colors to subtle pastels. Adding lime fills the gaps between red, green, blue and enhances the color spectrum of the fixture. It also adds beautiful white tones to the feature set. High performance LEDs deliver high CRI and R9 values.

The Odin combines convection cooling with an ultra-quiet intelligent fan. The fixture can be aimed easily by using the one button test function. The fixture can also be configured for exhibition applications by using the



CLF Odin



CLF Poseidon

definable user modes.

### CLF Poseidon

The CLF Poseidon is a powerful outdoor beam fixture (IP65) that has been developed for smooth CMY color mix-

ing. Based on the successful CLF Aorun, the Poseidon comes with a fast and accurate feature set including a double prism, gobo wheel, animation section, and frost. The 190mm wide lens and unique optics allow big mid-air effects with a bright and punchy beam, delivered by a 400W light source.

The elegantly shaped, IP65 rated, housing is equipped with specially designed motors enabling fast pan and tilt movements. A bright O-LED screen offers easy access to on-board settings, even in bright environments.

## ARRI ANNOUNCES INTELLIGENT LIGHTING CONTROL APP

**Stellar**—ARRI's lighting control app—has paved a new way for lighting control, complete with a highly intuitive user interface for advanced network configuration and management. Stellar made working with modern LED fixtures easier than ever before.

With Stellar 2, ARRI has taken the next step forward. Third-party products are now able to be controlled with Stellar 2. Other features, such as grouping, have become much more convenient making setups faster and more flexible.

### Control of third-party luminaries

Stellar 2 is ready to control

luminaries from other manufacturers including Litegear, Astera, and Kino Flo. A set of generic dimmers can even be set up to work with tungsten lights (on a DMX dimmer). With Stellar 2, the correct DMX addresses can be assigned to the luminaries in only a couple of steps.

### Swap out fixtures

If any fixture needs to be swapped out, possibly due to malfunction, it can be easily exchanged without affecting the setup. A re-scan will detect it, if the fixture has not been in the setup before.

### Grouping of different CCT ranges

With Stellar 2, it is now possible to group fixtures with different CCT rang-

es. The fixture with the smallest range takes precedence while all the other ranges are cropped.

### Intensity

Stellar 2 is able to accommodate a variety of unique requirements. Apply personal value as the default intensity by simply storing it as a favorite in the app settings. The intensity will also remain at the same level throughout all modes.

### Additional fixture data

If a fixture can provide these RDM functionalities, temperature and mode information will be displayed in the



fixture setups.

In Stellar 2, several smaller enhancements have been introduced including: a trial phase expiry warning, smoother looks application when no color mode change is necessary, improved connectivity handling, presets that apply on different fixtures, and minor usability, layout, and stability improvements.

## ROE VISUAL LAUNCHES NEW PROCESSING PLATFORM

ROE Visual introduced a new processing platform at ISE 2020. Showcasing its new Ruby LED panel on the Helios processing platform, the large display screen brought content in full 4K HDR.

The Helios processing platform is the result of close cooperation between ROE Visual and Megapixel VR. Combining their forces and in-depth knowledge of LED- and processing technology the result is a future-ready processing platform that reimagines processing to support large-format LED displays for use in demanding pro AV, broadcast and installation applications. The Helios processor will be exclusively available for ROE Visual LED screens.

Designed as a flexible growth-system, the platform offers a versatile solution with modular slots. The inputs and outputs of the Helios LED processing platform utilize SFP+ ports, a compact hot-pluggable network interface. Using the SFP+ ports, the processor capacity can easily be scaled to meet the requirements. Further-



more, the fact that Helios works as an AVoIP based system makes it very easy to use and implement. Multiple units can be used

to create a redundant system, and multiple inputs can be stitched to achieve canvas resolutions up to 16K wide.

"One key advantage of the Helios processing platform is its scalability; you can invest in this system to have it grow with your demands. Starting with a Helios Junior package, you can scale the system up to become a full-fledged

8K processing system", comments **Victor Kortekaas**, Technical Manager for ROE Visual.

"With its modular slots and SFP+, multiple inputs and a wide array of input adjustments, the system offers maximum flexibility. The easy panel mapping and multi-user, web-based approach make it very easy to work with", Kortekaas states.

"What is important for ROE Visual is to offer a unique combination of LED panels and processing platform that will give our client access to an exclusive technical solution that guarantees a best-in-class visual performance", comments **Roelof Bouwman**, General Manager for ROE Visual Europe. "ROE Visual offers a wide array of processing solutions, such as the eV4 and Brompton processing to meet the broad spectrum of requirements and applications that our customers demand, we believe that, with the Helios processor, we add one of the best processing solution currently available to our portfolio".

The Helios processing platform works with a range of ROE Visual LED panels, such as Sapphire, Diamond, Amber, Jasper and the recently released Ruby and Black Quartz LED platforms.



## VARI-LITE EXPANDS VL800 SERIES EVENT LINE WITH NEW COMPACT PROFILE

**Vari-Lite** has announced that the Vari-Lite VL800 EVENTPROFILE is now shipping. Originally debuted at LDI 2019 in Las Vegas, Nevada, the VL800 EVENTPROFILE is the newest member of the popular VL800 Series of event luminaires.

The VL800 EVENTPROFILE brings the DNA of Vari-Lite in a compact profile luminaire perfect for the event market. "The VL800 Series has already been embraced by designers on tours and installations alike," says **Martin Palmer**, Senior Product Manager, Vari-Lite and Strand Luminaires at Signify. "This latest member of the family is a compact framing profile with a high output and professional-grade features, making it the ideal tool for a variety of applications."

With a tour-ready build and a small form factor, the VL800 EVENTPROFILE was designed to look and feel like a Vari-Lite, with full CYM+CTO color mixing. "The VL800 EVENTPROFILE offers the same color palette as the

industry-standard VL2600 Profile," adds Palmer. "With the EVENTPROFILE, designers get a fixture built on that same popular innovation, but in a more compact package and a feature set targeted specifically at the mid-market."

Despite its size, the VL800 EVENTPROFILE is full of modern features, supplying a fixed color wheel; static and rotating gobo wheels; and prism, frost, and iris. With camera-ready frequency adjustment options and multi-mode fan control, the VL800 EVENTPROFILE works well in any venue. "We continue to expand our popular VL800 Series so we can address more needs for more designs," says **Fernand Pereira**, Head of Marketing and Product Management, Vari-Lite and Strand at Signify. "We are committed to ensuring the VL800 Series brings the quality and capabilities customers expect from us in fixtures targeted at event applications. We are proud to say that this newest member of the line more than delivers on that promise."



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## MARTIN LAUNCHES MAC AURA PXL LED PIXEL WASH LIGHT

**HARMAN Professional Solutions** has announced the new **Martin MAC Aura PXL LED** wash light, the industry's first wash light with individual pixel control of both the main beam and Aura backlight.

With a bright, precisely-calibrated RGBW engine, instant color mixing and seamless pixel mapping, the MAC Aura PXL is both a sustainable workhorse for rental companies and a powerful creative tool for lighting designers. The MAC Aura PXL expands on the unique LED backlight concept introduced in the popular MAC Aura with an enhanced feature set that presents amazing new possibilities.

"The MAC Aura PXL is the next evolution of the MAC Aura product line, and delivers essential new features that lighting designers have been requesting," said **Markus Klüsener**, Global Product Line Manager for Stage Lighting, HARMAN Professional Solutions. "With control over each individual pixel, not only the 19 main beam pixels, but also down to the 141 Aura backlight pixels, via DMX, ArtNet, sACN, but most importantly and simply, our very own P3 protocol; lighting designers can create never-before-seen effects and map pixels to video with ease. And with its powerful output and reduced size and weight, this fixture represents a powerful addition for any

rental company's inventory."

Sporting an RGBW LED engine capable of 13,000-lumen output, the MAC Aura PXL is a true workhorse lighting fixture. Precisely calibrated LEDs deliver rich, saturated colors and subtle pastel hues with instant color mixing and minimal color degradation over time. The MAC Aura PXL's precise, silent 1:8 zoom goes from wide wash coverage to a tight and high intensity 5 degree narrow beam.

A single Ethercon data connection supports all modern protocols such as P3, ArtNet and sACN, while a 5-pin DMX connection ensures universal compatibility. A built-in Ethernet switch with



fail-safe relay means the fixture can be turned off and on without affecting other fixtures down the line. Weighing just 33 pounds with a small footprint, the MAC Aura PXL takes up less truck space and is easy to transport and rig.

## ETC LAUNCHES ARCSYSTEM NAVIS LUMINARIES & F-DRIVE POWER CONTROLS

**ETC** is revolutionizing commercial LED systems with the announcement of two new product families designed to work cohesively together. **ArcSystem Navis** is a line of LED luminaries featuring pristine light as well as a modular design for smooth installations. For centralized LED power controls, **F-Drive** is a new system offering an intuitive design with customizable output cards. Together, Navis and F-Drive make one adaptable and robust LED system for any space.

The Navis line of luminaries prioritizes ease of installation, hassle-free maintenance, in-field customization, and beautiful light with high-grade TIR optics and stepless dimming.

The fixtures are available in multiple color temperature options ranging from 2700 K to 5000 K as well as an RGBW color-mixing option. A 3000 K Fade to Warm variant is also available providing an intimate, warm light at lower inten-



sity levels often preferred in hospitality environments. In the field, aesthetic changes can be made in seconds with various magnetic trim plates, clip-in optical accessories, and twist-and-click

beam angle lenses.

The recessed Navis 100 offers a small form factor at only 100 mm high with three wind-down clamps catering to ceiling thicknesses from 0.5 to 20 mm. Any Navis 100 can be transformed into

a Surface Cylinder or Pendant solution by sliding it into the purpose-designed hardware accessories. In addition, an optional wall wash accessory is available, instantly transforming the

Navis 100 into a luminaire capable of providing a smooth blanket of light for a wall or corridor application.

The F-Drive LED power control solution is optimized for seamless use with ArcSystem Navis luminaries, as well as third-party fixture applications. F-Drive provides an accessible hub for all the critical components controlling an LED system utilizing familiar category type cable with RJ45 connections. Depending on a facility's needs, the F-Drive family includes both an R12 rack-mount option and a W1 wall-mount option. F-Drive R12 is compact, using just 3U of rack space, providing power and data support for up to 48 individually controllable Navis 100 luminaries.

## STRAND ANNOUNCES OUTDOOR-READY VERSION OF LEKO PROFILE

**Strand** has announced the Leko LED Outdoor Profile, an IP65-rated version of the popular Strand Leko. The new weather-ready profile luminaire is available in both a full color version featuring RGBALC color mixing, as well as a higher output white version. The Leko LED Outdoor is part of a full range of theatrical luminaires announced by Strand.

"The Leko LED Outdoor Profile is a modern successor to the iconic Strand Leko, but in a sturdy IP65 housing built to withstand the elements," explains **Martin Palmer**, Senior Product Manager, Var-Lite and Strand Luminaires at Signify. "Designed to take the performance outside no matter the weather, the fixture strikes the ideal balance of color

quality and output, making it perfect for a variety of outdoor performance and archtainment applications."

Like the standard Leko LED Profile fixture, the full color version of the new Leko Outdoor Profile uses the RGBALC (red, green, blue, amber, lime and cyan) color mixing system as seen on the Vari-Lite VL5LED WASH. With the addition of the innovative SmartColor Control system, designers can use RGBALC color mixing to achieve the deep colors they would normally obtain with gels, all while using traditional CYM + CTO controls. To compliment the full color version, a high output cold white (5600K) version of the Leko Outdoor Profile is also

available. The white-only version is optimized to give even greater power for long distance projection applications.

The profile includes an onboard motorized zoom and focus. The zoom has a range of 18° to 30°, and the zoom and focus can be adjusted either manually or via DMX. The Leko LED Outdoor also includes a four-shutter framing system,



and an optional rotating/indexable gobo rotator is available as well.

"The Leko LED Outdoor Profile has been designed carefully with the unique challenges of outdoor applications in mind," adds Palmer. "We worked hand-in-hand with designers in these markets and are offering a fixture that specifically meets their needs, rather than simply placing our Leko LED fixture in an IP-rated housing. We are excited by the feedback we've received from these designers, and we look forward to the innovative lighting designs we are sure will come using the new Leko Outdoor Profile."



## 'WE' OR 'I' ?

**T**he Human Race Vs a Virus. The most Evolved of Life's forms battling against the Basest.

Like in any war – Nobody has a clear idea on who is winning and more worryingly – what the state of Battle-field will be after the battle ends one way or another.

Right now we all assume that our scientific prowess will prevail as soon as we figure out how to combat the virus on its terms.

By and large our industry is only a mute observer as this is played out over the world. We, action oriented sorts used to working under impossible deadlines and used to figuring out how to meet so many conflicting demands have been told to simply just shut down and sit on our hands.

Not just our businesses and work places, but also all but the most basic of our body systems.

No need to think, plan or plot. None of us has a clue on what to plan for and when we can even think of implementing.

Our creativity, energy and our need to do stuff has to be channelled into 'Learning Series over the Net'. Full marks for everybody who got up and running so quickly. Sharing so generously of their knowledge. Time everybody has.

All was well until that bloody 'what if' gene raised his hand. Yes that same one that gets me into trouble now and again.

This Virus – has at least temporarily – made all of those learning's redundant. As useful as those learning's are, it looks like we not going to get a chance to implement anything for many months.

So that irritating bugger impudently sits on my shoulder and asks me 'What you going to do until then?'

I have watched with alarm when a few respected colleagues have slashed payrolls, rentals and in some extreme cases actually shut down businesses. All bravely making promises that they 'Will Be Back!'

I am sure they will. It was their spirit and energy that led them to set up their companies in the first place. Barring some very terrible circumstances ('Ovairu Ovairu' – That's Parsi for asking the Gods to never let it happen) I have full faith that they

will find a way for themselves when the time comes.

### Great – What about Now?

Let me have a stab at it – here's what I think. Hope it helps you form some ideas of your own.

Everybody talks of a 'NEW NORMAL'. Everybody talks loosely that it will include social distancing and a huge reliance on the WEB. Ok – so then what? Do you realise that makes almost 50% of us redundant.

Methinks the First thought in our minds should be – Do I do this alone and in isolation of everybody else.

OR

Every one of us is in this together. Venues, Equipment Manufacturers, The whole supply chain, Designers, Rental Companies and down to the ground technicians.

All of us are affected and it may make sense to create a system where each

full business – ALL of us will be there to build our businesses and livelihoods again.

Think. Even if we have the resources to last through this by ourselves. Is it better to be marooned on an island and then swim to the mainland when the storm passes? Rebuild from scratch.

Or does it make sense to stay on the mainland, keep our house in shape and the fields ready so that when it is safe to emerge – we are up and ready to go from Day 1.

It's easy to say let's all go web based. But if our venues all close down and get repurposed in this time – where are you going to stage your events?

It's easy to say put everybody on Half salary. Can our guys survive? Our well trained staff may drift away. Who will operate our equipment when the shows come on again?

Does it not make sense for a col-

**Everybody talks of a 'NEW NORMAL'.  
Everybody talks loosely that it will  
include social distancing. Ok – so  
then what? Do you realise that makes  
almost 50% of us redundant.**

one finds a place.

I understand that traditionally we Indians are sceptical about collaborating. We as a race feel more comfortable in smaller organisations where we depend on fewer people and prefer to work in tight circles.

But I guess this gives us an opportunity to open our eyes and reach around us for support.

I saw an alarming post where a senior opinion shaper of our industry calls for an 'abandon ship, each man for himself' approach. My take is that perhaps that approach works when the ship is doomed and there is no chance of saving her from the depths.

I'd like to think this is a blip for humankind and we will survive. The question is 'In What Form'?

I'd like to believe that a few of the thought leaders can share some ideas on how ALL us can survive this is some form – so that when we can open for

lective of the senior to somehow repurpose our people and staff temporarily so that we can make enough to survive this phase. But with an eye to the future. Ensuring that all of us are enabled roll as soon as it's safe to rock.

That's what the title of the article asks you to think about.

Are WE going to think about collectively saving ourselves and our industry or will you prefer 'I Will Survive on my own'.

Here's a tiny example. Rather than keep all Hotel Ballrooms shut. Let's ask if we can sell them at say a 30 % capacity that will allow social distancing. Turn arounds will be quicker. Our People will manage some of that and support the hotels teams. Smaller equipment and resources. Perhaps we can all make 30 – 50% (due to quicker turn a rounds). It's something for everybody. Our marketing teams work is sync selling the project as a concept – and not

individual companies. Utopian?

Sure – It's never happened before. But then we were never hit by this kind of virus before. There is talk about a risk of sudden shut downs at any time. This system could build in a shock proof system where the risk is distributed over a larger bunch rather than fall on any one unlucky head.

There is so much talk of slashing any extras and focussing on essentials. Great. Unless your entire livelihood is based on somebody's taste for the extravagant. I'm not talking High end watches here. I'm talking decent restaurants that have become part of our lifestyles. You are down to ZERO.

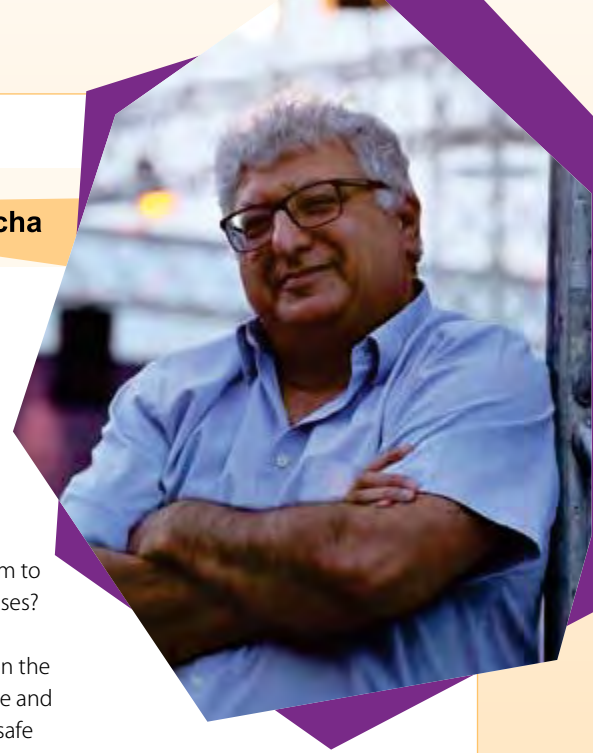
Restaurants capacities may need to come down – but can't they work some system out? Perhaps if everybody just order ahead? Or if restaurants could trim menus, in consultation with their neighbours. The limited clientele can be distributed, staffing and supplies can be easily managed and waste trimmed.

Please don't strip down these ideas and dismiss them. I am not an expert in your trade. But think like that. If the tech manufacturers figure out that it does not make sense to 'make.'

Can their facilities be retooled for maintenance? Could that work? Yes it's outside the ordinary and it's not normal.

But that is the point of this article. To urge all of us to step outside of ourselves, open our minds and create the 'New Normal'.

The New Normal of our choosing rather than have it created for us by somebody who has no understanding of our business and no respect for our lives. Our lives and careers that define us and that all of us have worked so hard to create.



# Outdoor Line Arrays

## Bose ArenaMatch

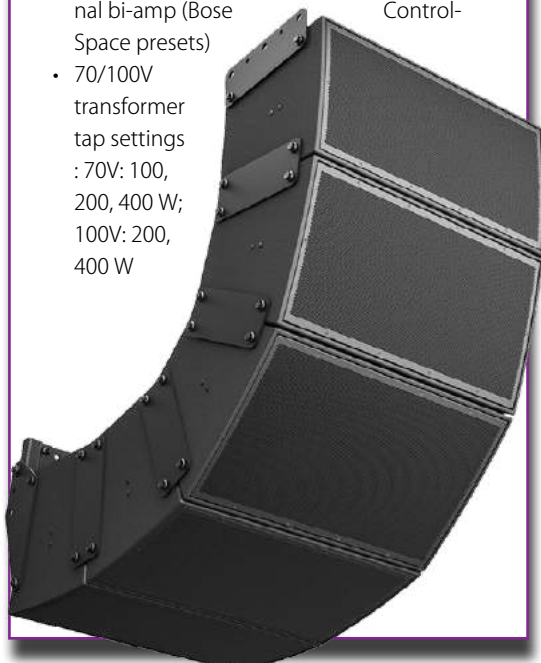
Bose Professional ArenaMatch loudspeakers bring proven DeltaQ sound quality and flexibility to outdoor installations — sports stadiums, arenas, outdoor entertainment centers, and more. Featuring an IP55 weather rating, ArenaMatch DeltaQ modules make it easy to create durable and reliable outdoor loudspeaker arrays that bring consistent, intelligible sound to every listener. There are 9 coverage patterns available — choose from modules with 10, 20, or 40-degree vertical coverage — and 60, 80, or 100 horizontal waveguides.

### Main Features include:

- Improve sound quality, consistency, and vocal clarity with DeltaQ array technology
- Easily customize horizontal coverage with replaceable waveguides
- Deliver high-SPL, long-throw music reproduction and vocal intelligibility
- 14-inch neodymium woofer and six Bose EMB2S titanium-diaphragm neodymium compression drivers
- Rated for direct-exposure outdoor installations
- Three-layer stainless steel grille, water-resistant woofer cone coating, industrial polyurethane exterior coating, and molded input cover
- Provide full coverage with fewer modules

### Technical Specification: (ArenaMatch AM40)

- Frequency Response (–3 dB) <sup>1</sup>: 65 Hz to 16 kHz
- Frequency Range (–10 dB) : 55 Hz to 18 kHz
- Nominal Coverage Pattern (H × V): 60° × 40° (AM40/60) or 80° × 40° (AM40/80) or 100° × 40° (AM40/100)
- Recommended High-pass Filter : 60 Hz with minimum 12 dB / octave
- Crossover: 950 Hz internal passive or external bi-amp (Bose Control-Space presets)
- 70/100V transformer tap settings : 70V: 100, 200, 400 W; 100V: 200, 400 W



### Transducers

- Low Frequency: 1 × Bose LF14 neodymium 14-inch woofer (4-inch voice coil)
- High Frequency: 6 × Bose EMB2S titanium-diaphragm, neodymium compression drivers (2-inch voice coil)
- Nominal Impedance: Passive: 8 Ω / Bi-amp: 8 Ω + 8 Ω
- Enclosure Material: Exterior-grade birch plywood
- Finish :Two-part polyurea coating, black
- Grille: Powder-coated perforated stainless steel, acoustic foam, stainless steel mesh
- Suspension/Mounting: 8 x M12 threaded inserts (4 per side); 4 x M8; threaded inserts (2 per side)
- Dimensions (H x W x D) – millimeters : 489 x 783 x 400 mm (19.3 x 30.8 x 15.8 in)
- Net Weight: 34.9 kg (77 lbs)

## d&b Audiotechnik KSLi Series

A complete installation package for the most comprehensive range of installations and applications, the KSLi system features the KSLi8 / KSLi12 loudspeakers, combined with (KSLi-SUB/ KSLi-GSUB), subwoofers, the new 40D high performance installation amplifier plus a complete catalogue of system specific accessories and customization options.

### Main Features include:

- KSLi8 and KSLi12
- Two custom designed 1.4" exit HF drivers with 3" voice coils in a compact format bring high output and resolution with an impeccable sonic quality
- A high sensitivity horn for the midrange, loaded with an 8" driver
- Two 10" LF drivers, coupled with two side facing 8" LF drivers that couple towards the front, cancel towards the rear and increase low frequency headroom
- Cabinets are constructed from marine plywood and have an impact and weather protected PCP (Polyurea Cabinet Protection) finish.
- The front and side panels incorporate rigid metal grills backed by an acoustically transparent and water repellent fabric.
- Designed for medium to large scale sound reinforcement.
- Up to twenty-four KSLi loudspeakers can be flown in vertical columns.

### Technical Specification: (KSLi8)

- Components: 2 x 10"Front LF; 2 x 8"Side LF; 1 x 8"MF; 2 x 1.4"exit HF 3"coil

- Output (1m) <sup>1</sup> : 145 dB SPL
- Power rating<sup>2</sup> Front LF: 450 / 1800 W
- Power rating<sup>2</sup> Side LF/MF/HF: 250 / 1000 W
- Frequency response (–5 dB): 54 Hz–18 kHz
- Dispersion (H): 80°<sup>3</sup>
- Cabinets per 40D (2-Way Active): 2 (with Array Processing); 4 (with Arc / Line mode)
- Dimensions mm (H x W x D) 330 x 1000 x 572
- Weight (kg): 57



## Martin Audio WPS

The WPS is a versatile, state-of-the-art line array with a peak SPL of 133dB and is designed for small-to-medium scale touring and install applications that require a high output array with reduced weight and footprint. With exemplary coverage consistency and superb sound performance, the flexibility of WPS makes it an ideal system for live sound reinforcement and installations in theatres, concert halls and Houses of Worship.

### Main Features include:

- Ultra-compact line array
- Scalable resolution for advanced array control
- External, dedicated, multi-channel Class D amplification
- Industry-leading DISPLAY software interacts with DSP for highly-accurate results
- Fast, integral 3-point flying systems for up to 16 enclosures
- Side and rear handles for ease of handling and setting splayangles
- 100° horizontal constant directivity pattern control

### Technical Specification:

- Type: Three-way, passive line array element
- Frequency Response (5): 70Hz-18000Hz ± 3db



**Line Array Speaker** systems are perfect for a wide range of applications including: stadiums, live sound venues, theatrical sound, performing arts facilities, house of worship, auditoriums, sports facilities, entertainment venues and arenas.

**PT** takes a look at some of the outdoor line arrays launched in 2019.

- Drivers: LF: 2 x 8" (200mm)/2" (50mm) voice coil, long excursion, vented yoke, neodymium magnet drivers; MF: 4 x 4" (100mm)/1" (25mm) coil, neodymium magnet drivers, compression loaded; HF: 4 x 1" (25mm) exit/1.4" (35mm) HT Polymer diaphragm, neodymium magnet compression drivers
- System Amplifier: ikon ik42
- System Resolution: 1 to 3 enclosures per amplifier channel (ik42)
- Maximum SPL (9): 133db peak
- Nominal Impedance: 6Ω
- Dispersion (-6dB) 100° horizontal (-6db), 120° horizontal (-10db); 10° vertical
- Crossover: 520Hz, 1.6kHz internal passive
- Enclosure: Vertical trapezoid with 5° wall angle, Multi-laminate birch and poplar-ply construction
- Connectors: 2 x NL4 type
- Fittings: 3-point rigging system; 2 x side pocket handles; 2 x rear grip handles
- Flown array maximum: 16 (installation) and 24 (touring) enclosures in a single array
- Dimensions: (W) 650mm (25.6in) x (H) 261mm (10.3in) x (D) 400mm (15.8in)
- Weight: 27kg (60lbs)



### Nexo GEO M12 Series

GEO M12 shares the same aesthetic and sonic signatures as the acclaimed GEO M10 and compact GEO M6 line arrays. The M12 can be used in a range of applications from large theatres and live performance venues to stadiums and houses of worship. Integral rigging hardware with no loose parts makes it easy to quickly configure ground stacks and line arrays of various scales.

#### Main Features include:

- Powerful line array element that can be stacked or flown, with or without its com-

panion sub the MSUB18.

- Integrated rigging hardware with no loose part and AutoRig™ feature.
- Available in Touring or Installation versions, with custom RAL colour options.
- Incorporates latest NEXO patented technology from the flagship STM series.
- Comprehensive range of versatile, multi-function accessories for deploying the GEO M12 in a wide variety of applications

#### Technical Specification:

- Frequency Response @-6 dB: 50 Hz to 20 kHz
- Sensitivity 1W@1m: 105 dB SPL Nominal
- Peak SPL@1m: 140 dB
- Passive Crossover Frequency: 1.1 kHz
- Nominal Impedance: Active mode: (8 Ω LF + 16 Ω HF)/Passive mode: 8 Ω
- Recommended Power: Active mode: (1250 Watts LF + 625 Watts HF)/Passive mode: 1250 Watts
- LF Component: 1 x 12" 8 Ohms long excursion Neodymium driver with PDDTM
- HF Component: 1 x 3" voice coil 1.4" throat driver on a BEA/FEA optimized HR
- Wavesource™
- Height x Width x Depth: 370 mm x 700 mm x 446 mm (14.6" x 27.6" x 17.6")
- Weight: Net: 34 kg (75 lb)
- Connectors (Touring version): 2 x NL4, 4 poles connectors (1+/- Through, 2+/- GEO M12 in passive mode, 1+/- LF, 2+/- HF in active mode)
- Connectors (Install version): 2 x Cable gland with 4 cores connectors
- Active / Passive mode selection: Ruggedized, recessed, water-proof 2 positions switch
- Construction: Lightweight Polyurethane Composite
- Fittings: 2 x Side handles horizontal + back grip



### L-Acoustics Kara II

Kara II is a modular line source system that can be deployed standalone or with its companion subwoofer SB18. Assembled as a variable curvature line source with class-leading SPL per weight and footprint, Kara II is ideal for applications that require clarity and long throw capability such as performing arts, congregations, large corporate and special events.

#### Main Features include:

- Internationally-recognized Kara with Panflex
- Added variable directivity and improved polar stability
- 4 integrated horizontal directivities (70°/110° and 90° L/R)
- + 2 dB SPL at 70°
- Compact and lightweight design
- Time-tested efficient rigging system

#### Technical Specification:

- Description: 2-way active WST enclosure, amplified by LA4X/LA8/LA12X
- Usable bandwidth (-10 dB): 55 Hz - 20 kHz ([KARA II 70])
- Maximum SPL1 : 142 dB ([KARA II 70])
- Nominal directivity (-6 dB): Vertical: depending on number of elements and array curvature
- Horizontal: 70° / 110° symmetric or 90° asymmetric
- Transducers: LF: 2 x 8" neodymium cone driver; HF: 1 x 3" neodymium diaphragm compression driver
- Acoustical load: LF: Bass-reflex; HF: DOSC waveguide, Panflex Nominal impedance: LF: 8 Ω; HF: 8 Ω
- Connectors: IN: 1 x 4-point speakON LINK: 1 x 4-point speakON
- Rigging and handling: 4-point captive rigging system; 2 side handles, 2 rear handles
- Inter-enclosure angles [deg]: 0, 1, 2, 3, 4, 5, 7.5, 10
- Weight (net): 26 kg / 57 lb
- Rigging components: High grade steel with anti-corrosion coating



## MXMDR LA Line Array Series

MX Line Array is a large step forward in speaker design from the standard box on a stick. Engineered to provide a very wide dispersion pattern and a narrow vertical dispersion pattern, MX Line Array gives full control over how sound is presented at venues and outdoor



performances. Ideal for a wide range of portable and permanently installed applications the full size flagship MX Line Array and a smaller sized Compact Line Array provides clarity and consistency than normal PA systems. The LA 28, LA 10, LA 210 and LA 212 are the cabinets that make up the LA line of speakers.

### Main Features include:

- MX Audio Line Array is easily flyable and the suspension can be easily adjusted to any angle needed for a venue
- Heavy duty construction and high quality parts make this series perfect for life on the road.
- Cabinets can be bi-amped and also used in different configurations.
- Compact And Powerful Russian Birch Plywood Cabinet
- Pole Mount Socket For Stand Mount
- Attractive Steel Grill With Acoustic Form

### Technical Specification: [MX LA 212 (Neodymium)]

- Description: Dual 12 Inch Line Array
- System Type: Two-way Speaker
- Frequency Response: 50~20 kHz
- Component LF: 2 X 12" / 3"VC / Neo
- HF: 75mm Neo
- Rated Power: 1000w
- Program Power: 2000w
- Sensitivity: 102dB
- Max SPL: 133dB
- Impedance: 8 Ohms
- POWER: (Continuous / Program / Peak):  
Passive: 1000W / 2000W / 4000 W

## Peavey Versarray 112 MKII Line Array

The Versarray 112 MKII Ribbon Driver Line Source Array module consists of a new 12" Neo Black Widow woofer combined a neodymium-based Peavey RD 2.6 ribbon driver in a cabinet with a highly flexible rigging system. Designed to provide modular coverage of small to medium venues, and intended for use with the companion Versarray Sub models, the Versarray 112 MKII offers extreme versatility and high performance capability.

### Main Features include:

- Two-way Bi-Amp Ribbon Line Source Array SR System
- New Ribbon Driver with Neo magnet, 50% more power handling and 2dB more sensitivity
- Durable Hammer Head polyurethane finish
- Easy aiming angle adjustment rigging system Angle adjustable in 2 1/2 degree increments from 0 to 15 degrees, total angle between adjacent cabinets



### Technical Specification:

- 12" Neo Black Widow 4" VC Woofer
- 1,000 watt program, 2000 watt peak power handling
- 90 Degrees H by 15 Degrees V coverage pattern (per one cabinet)
- Sound Guard tweeter protection
- Inputs are two Neutrik Speakon 4-pin jacks in parallel
- 18mm 13-ply Baltic birch enclosure
- Weight Packed: 70.55 lb(32 kg)
- Width Packed: 17"(43.18 cm)
- Height Packed: 27.25"(69.215 cm)
- Depth Packed: 14.5"(36.83 cm)

## Funktion One Vero VX

The VX90 is a 3-way vertically arrayable loudspeaker with four new Funktion-One designed Neodymium drivers in a horizontally symmetric configuration. The Vero VX system comprises VX90 full-range vertically arrayable loudspeakers, V124 or V221 bass enclosures, amp racks, fly bars, transport dollies, ground stack hardware, cabling and Projection predictive software..

### Main Features include:

- Funktion-One wide bandwidth Axhead midrange (300Hz - 5kHz) for natural and effortless vocal clarity
- Isophase diffraction waveguide (HF) for coherent high frequency summation
- Lambda rigging ensures accurate array alignment
- Choice of motorized or static fly beams
- High efficiency drivers giving dynamic headroom, high SPL and low amplifier count
- Innovative FIR filter design providing wide and consistent horizontal dispersion
- whilst ensuring accurate transient response
- No corrective EQ, preserving headroom and phase coherency
- Very clean output, even at maximum power
- Excellent results when used as a single enclosure

### Technical Specification:

- Frequency response  $\pm 3\text{dB}$ : 60Hz - 18kHz
- Usable bandwidth: 50Hz - 20kHz
- Maximum SPL \*: 144dB
- Horizontal dispersion: 90°
- Vertical dispersion: 13°
- Nominal impedance: 4 x 16Ω
- Rated power: LF: 2 x 400W; MF: 200W; HF: 50W
- Weight: 70kg (154lbs)
- Connectors: 2 x Neutrik NLT8MP





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# RECORDINGS TO RECORD

Music in India has changed drastically. This music and song driven country which is largely dominated by Bollywood soundtracks, has in the past year seen less of originals and more of old songs being plagiarised to suit the new generation. But it is still up to the mixing and mastering engineer to give the old songs a complete makeover and the new songs sound even better. Whatever the case and whatever your taste in music, chances are the song you are listening to was made in a recording studio, mixed and mastered by experts to create a unique sound. Have you ever stopped and wondered what goes into making the song sound the way it does. In the list mentioned below, **PT** has listed the **Top 30 Bollywood songs of 2019** that was largely appreciated by the audience.

## Kaise Hua Kabir Singh

Mix & Mastering Engineer: Shadab Rayeen  
Asst. Mixing Engineers: Abhishek Sortey & Dhananjay Khapekar  
VM Studios, New Edge

## Ghungroo War

Mixed by: Vijay Dayal  
Mastered by: Donal Whelan  
Vishal and Shekhar Studio,  
YRF Studios,  
Mastering World, Wales - UK

## Apna Time Aayega Gully Boy

Mixing: Dub Sharma  
Mastered By: Graeme Durham  
Purple Haze Studio  
The Exchange UK

## Bekhayali Kabir Singh

Mix & Mastering Engineer: Aftab Khan  
Asst. Mixing Engineers: Vatsal Chevli  
HeadRoom Studios

## Naah Goriye Bala

O Saki Saki  
Batla House  
Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Istanbul can

## Ve Maahi Kesari

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
ABHIZ Music Records

## Dil Ka Telephone Dream Girl

Mix & Mastering Engineer: Gautam Chakraborty  
Meet Bros Recording Studio

## Coca Cola Luka Chuppi

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Teri Mitti Kesari

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Dheeme Dheeme Pati Patni Aur Who

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Don't Be Shy Bala

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Tujhe kitna chahne Kabir Singh

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
LIVINGWATERMUSIC

## Makhna Drive

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Kinna Sona Marjaavan

Mix & Mastering Engineer: Bharat Goel  
Meet Bros Recording Studio  
Global Sound Labs B

## The Wakhra Song Judgemental Hai Kya

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
Future Sound of Bombay

## Asli Hip Hop Gully Boy

Recording Engineer: Vrikpal Singh  
Mastering Engineer: Nakul Kamte  
Purple Haze Studios

■ Top Film Tracks - Album

■ Sound Engineers

■ Recording/ Mixing / Mastering Studio



**Shaitan Ka Saala**  
**Housefull 4**

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
**Saba Studios**  
**YRF Studios**

**Slow Motion**  
**Bharat**

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
**Music- YRF Studios**  
**Vocals- VnS Studio**

**Mere Gully Mein**  
**Gully Boy**

Recording Engineer : Vrikpal Singh  
Mixing Engineer : Nakul Kamte and Vrikpal Singh  
Mastering Engineer : Nakul Kamte  
**Purple Haze Studios**

**Chamma Chamma**  
**Fraud Saiyaan**

Mix & Mastering Engineer: Eric Pillai  
**Future Sound of Bombay**

**Dil Chori**

**Sonu Ke Titu Ki Sweety**  
Mix & Mastering Engineer: Vinod Verma

**Ghar More Pardesiya**  
**Kalank**

Mix & Mastering Engineer: Shadab Rayeen  
Asst. Mixing Engineers: Abhishek Sortey & Dhananjay Khapekar  
**New Edge, YRF Studios**

**Tera Yaar Hoon Mein**  
**Sonu Ke Titu Ki Sweety**

Mix & Mastering Engineer: Shadaab Rayeen  
Asst. Mixing Engineers: Abhishek Sortey & Dhananjay Khapekar  
**New Edge, Rochak Kohli Music Studio,**  
**Wow & Flutter Studio**

**Koka**  
**Khandaani Shafakhana**

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
**Future Sound of Bombay**

**First Class**  
**Kalank**

Mix & Mastering Engineer: Shadab Rayeen  
Asst. Mixing Engineers: Abhishek Sortey & Dhananjay Khapekar  
**Pannonia Studio Budapest, Hungary**  
**Ashok Honda**  
**YRF Studios**  
**New Edge**

**Psycho Saiyan**  
**Saaho**

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
**Future Sound of Bombay**

**Kinna Sona**  
**Marjaavan**

Mix & Mastering Engineer: Bharat Goel  
**Meet Bros Recording Studio**  
**Global Sound Labs B**

**Tu Laung Main Elaachi**  
**Luka Chuppi**

Mix & Mastering Engineer: Eric Pillai  
Asst. Mixing Engineers: Michael Edwin Pillai  
**Future Sound of Bombay**

**Sauda khara khara**  
**Good newzz**

Eric Pillai  
Michael Edwin Pillai  
**YRF Studios**  
**AMV studios**  
**Future Sound of Bombay**

■ **Top Film Tracks - Album**

■ **Sound Engineers**

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## SERATO INTRODUCES SUPPORT FOR PIONEER DJ XDJ-XZ

Serato DJ Pro 2.3.3 has introduced support for the Pioneer XDJ-XZ. DJ's wanting to use the XDJ-XZ with Serato DJ Pro 2.3.3 will be required to update and install the latest version of the XDJ-XZ firmware.

For the first time, Serato's colored waveforms are integrated directly into the 7inch screen and CDJ-sized jog wheel displays. As well as Serato DJ Pro support also unlocks 4-deck mixing capabilities and a range of Serato specific software features. The XDJ-XZ allows to take full creative control of DJ sets with 14 professional beat FX and 6 Sound Color FX taken directly from the DJM-900NXS2 mixer, and trigger

software-specific features using the 16 multi-colored Performance Pads (eight per deck).

The output sound of the XDJ-XZ is easily tuned with the 3-band EQ on the master output - meaning it can easily be optimized for any environment. There are two separate microphone inputs with independent 3-band EQ's to give complete flexibility. A built-in Feedback Reducer means it's all hype, no hassle.

### Key features:

- 4-deck mixing capability with Serato DJ Pro
- Serato waveforms and track overview displayed on-screen and jog wheels



- Full-size CDJ jog wheels with virtual spindle and track information
- DJM mixing section with Beat FX and Sound Color FX
- Phono and line input on channels 3 and 4 for external players
- Dual mic connectivity with individual 3-band EQs and Feedback Reducer
- 16 RGB Performance Pads to control 8 Serato DJ Pro modes
- XLR and RCA master outputs

## KKR SELLS STAKE IN DJ EQUIPMENT MAKER ALPHATHETA TO JAPAN'S NORITSU

Investment firm KKR is selling ownership of AlphaTheta (formerly Pioneer DJ) to Noritsu, a Japanese photo processing machine manufacturer.

On March 2nd, 2020 Noritsu Koki Co., Ltd. signed a Share Purchase

Agreement with KKR PDJ Investment L.P. and Pioneer Corporation to transfer all AlphaTheta Corporation share each company holds to Noritsu Koki Co., Ltd.

With this agreement Noritsu Koki Co., Ltd. will be the parent company for Al-

phaTheta Corporation early April 2020.

As per the official press release by AlphaTheta, "Our business, operations, brands, including brand names will not be affected. We will continue contributing to the music industry with our innovative products and superior service through Pioneer DJ, rekordbox, KUVU, TORAI, Pioneer Professional Audio brands."

Tokyo Stock Exchange-listed Noritsu said it will acquire all shares of AlphaTheta for 35 billion yen (\$324.9 million), and will use a 30 billion yen non-recourse loan to pay the interest-bearing debt of the target company. The acquisition is aimed at increasing the profit-

ability of the company's businesses and achieving growth in the medium-term management plan.

The deal comes shortly after AlphaTheta rebranded the business earlier this year.

"We are proud to have worked with the management team and employees of Pioneer DJ, now AlphaTheta, to assist the business' growth in key global markets and to accelerate the company's migration towards a software-subscription model to align with emerging industry trends - all as a standalone company," Hiro Hirano, co-head of private equity for KKR Asia Pacific and CEO of KKR Japan, said in a statement.



## REKORDBOX INTRODUCES CLOUD LIBRARY MANAGEMENT

Pioneer DJ has announced the latest update of Rekordbox - Rekordbox ver. 6.0 and Rekordbox for iOS (ver 3.0).

Loaded with a host of major new features, the updated DJ application now enables users to sync the entire whole music library on multiple devices via cloud-based application Dropbox.

The Rekordbox offers centralized music management that stores the tracks in the cloud so users can play them via multiple devices whenever they like. Three subscription plans - Free, Core, and Creative plans - including a free option - offer

different feature sets so users can use the package that best suits their needs. For the first time, Export mode users

can prepare sets in an advanced virtual DJing environment using Performance mode, which is now free of charge.

The new updated Rekordbox allows users to Prep playlists, tracks, and meta-data such as cue points on to their studio computer then download it all to the laptop. Users can even choose playlists and tracks to transfer to and from their iPhone. And if the computer

goes missing or gets damaged, the music and metadata in the DJ library will be up to date and safely stored in the cloud.

Rekordbox for Mac/Windows (ver. 6.0) now integrates with Inflyte, the global music promotion platform. Use Rekordbox for Mac/Windows (ver. 6.0) to browse the tracks in the Inflyte Promo Locker and, if users have Dropbox enabled, Rekordbox can even automatically import promos.

The new rekordbox for iOS (ver. 3.0) also brings a host of new features to enable smoother preparation for performances and support for more file types.





## ALGORIDDIM COLLABORATES WITH TIDAL & SOUNDCLOUD FOR NEW UPDATE TO DJAY APP

**Algoriddim** has announced a free major update to dJAY, integrating both SoundCloud and TIDAL across its mobile and desktop applications. The partnerships enable Algoriddim to take streaming in DJ software to an unprecedented level, introducing live video mixing through TIDAL, access to SoundCloud's one-of-a-kind catalogue, and powerful song recommendations for both audio and video content, in one of its most significant feature updates to date.

### SoundCloud integration

The latest update to dJAY seamlessly connects to SoundCloud, enabling creators to instantly stream and mix more than 200 million tracks using a SoundCloud Go+ premium consumer subscription. In addition, dJAY's innovative Match feature has been extended to SoundCloud's music catalogue, providing powerful song recommendations.

To celebrate the launch and make it easier than ever to get started with DJing, Algoriddim and SoundCloud are offering access to a selection of featured tracks for free in the latest dJAY app, with no login required. The curated playlists feature emerging artists across a variety of genres including hip-hop, house, tech house, festival EDM, trap, and dubstep. dJAY's iOS app is already

free to download, and by providing immediately available songs from launch, Algoriddim has made another significant step in making DJing a more accessible art form than ever before.

### TIDAL integration

DJ's can now utilize TIDAL's HiFi sound and exclusive content with its comprehensive dJAY integration. dJAY Pro users are also able to stream TIDAL's unique catalogue of music videos and audio tracks, enabling users to mix videos and songs in real-time. This pioneering feature opens up a new chapter for DJs and VJs, providing unlimited possibilities for video output, allowing

users to mix between music videos the same way they would between songs. dJAY users will also be able to receive an upcoming free three-month TIDAL trial, which will be available to redeem within Algoriddim's apps.

dJAY is also extending its innovative Automix feature to TIDAL's music video library, utilizing its innovative AI technology to enable users to lean back and enjoy a perfectly mixed playlist with no need for manual intervention. dJAY's Match feature will similarly encompass both TIDAL's music and video catalogues, suggesting compatible music or videos during a mix.

TIDAL's seamless synchronization allows users to discover new tracks and videos through TIDAL's unique collections – including Top Tracks, Rising, Featured, and Genre – and instantly add these into their mix, whilst also being able to add songs or videos to their TIDAL favorites while mixing in dJAY. Ultra-low latency for both audio and video tracks, advanced effects, on-the-fly analysis, and TIDAL's renowned high fidelity sound quality provide a first-of-its-kind mixing experience.

"The integration of music video streaming through TIDAL and free to access hand-curated content from SoundCloud is unprecedented and continues to push the boundaries of streaming and DJ technology. By providing DJ friendly songs when you launch the app, we are not just providing users the tools to DJ, we are giving them the perfect tracks to start mixing right away," says **Karim Morsy**, CEO of Algoriddim.

"Algoriddim has pioneered music streaming in DJ software and we believe dJAY users will love the advancement into video streaming. The feature creates an immersive visual backdrop and provides dJAY users with new creative possibilities to help them elevate their DJ performances to a new level," Morsy continues.



## XDJ-1000MK2 AND XDJ-700 COMPATIBLE WITH TRAKTOR PRO 3

**Native Instruments' TRAKTOR PRO 3** DJ software is now compatible with the USB - HID control feature of **XDJ-1000MK2 and XDJ-700** multi players. This comes under the Pioneer DJ Certification Program, an initiative to evaluate products from other companies and certify them as compatible with the DJ gear.

The XDJ-1000MK2/XDJ-700 can be used to intuitively control TRAKTOR PRO 3 including scratching and tempo adjustment. The deck also displays track titles, artwork, and other information from the software to quickly select the next track without looking at the computer.

Registered users can download the

latest version of TRAKTOR (version 3.3.0) for free to use USB-HID control with the XDJ-1000MK2/XDJ-700. Also update the firmware for the XDJ-1000MK2 to ver. 1.42, and for the XDJ-700 to ver. 1.13.

### Key Features of Using the XDJ-1000MK2/XDJ-700 with Traktor Pro 3

#### Intuitive control

Simply plug the PC/Mac into the XDJ-1000MK2/XDJ-700 and control TRAKTOR PRO 3. Intuitively scratch and use performance features including loops, tempo adjustment, and play/cue,

linked to the software.

#### Track information on XDJ's screen

Text information, artwork images, and waveform (XDJ-1000MK2 only) from the tracks in TRAKTOR PRO 3 are displayed on the XDJ's high-resolution screen, so it can be found quickly and tracks can be selected by using the rotary selector on the deck.

#### Audio output device

The XDJ's built-in sound card can be used to output audio signals from TRAKTOR PRO 3 without the need for

an external audio interface.



XDJ-1000MK2



XDJ-700



TRAKTOR PRO 3 DJ software

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Goa based LumaSonic recently purchased a new Adamson sound reinforcement system, making them the latest company to join the Adamson network. In total the company added 16 S10...[read more](#)

L-Acoustics Open Day in India



Hi-Tech Audio Systems Pvt. Ltd., known as one of the top distributor & service provider of Professional Audio Video & Lighting System has recently organized "L-Acoustics Open Day"...[read more](#)

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