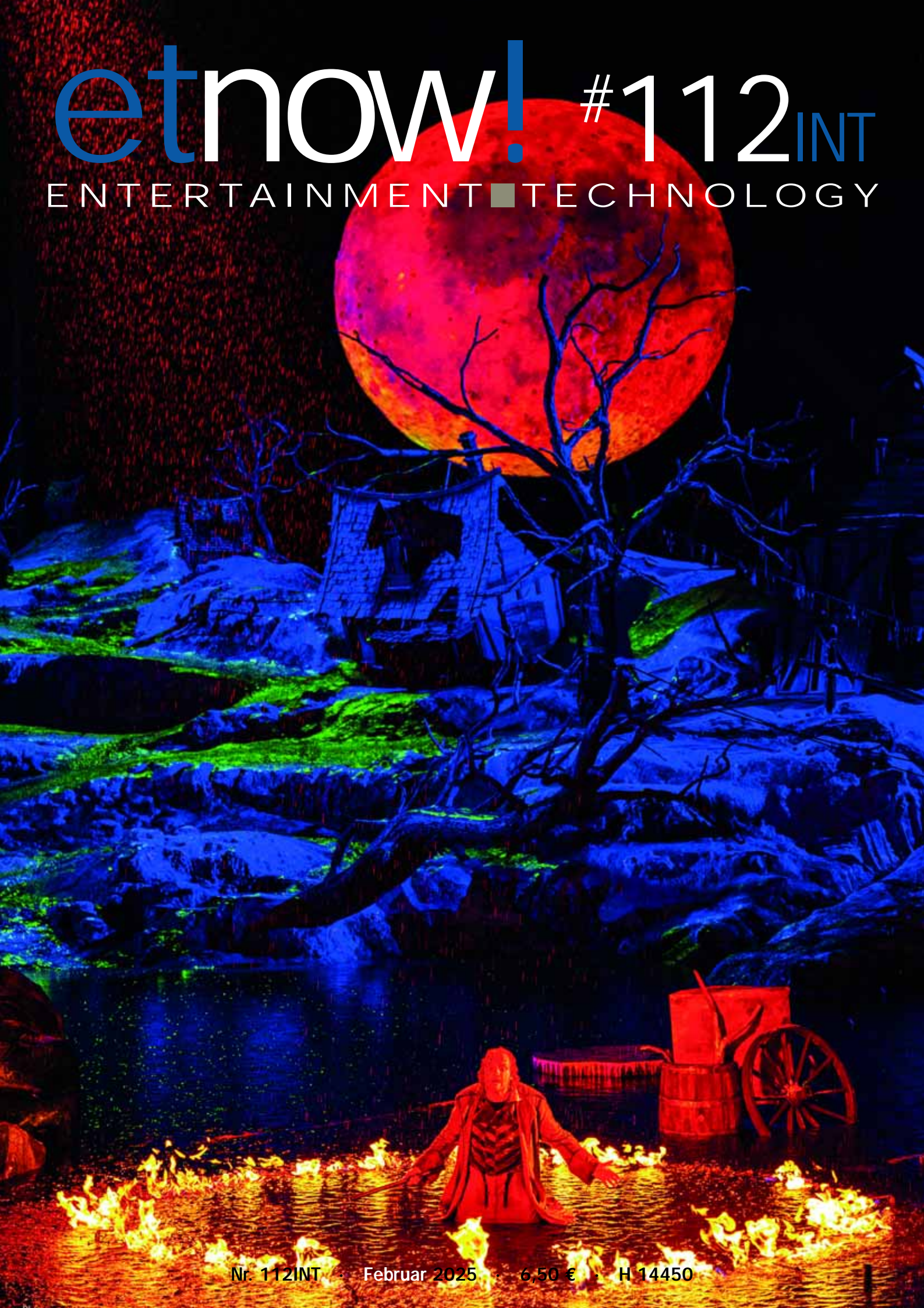


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WOLFGANG URSTADT

Technical Director, Bregenz Floating Stage  
wolfgang.urstadt@festspielhausbregenz.com

## A Bit of Hollywood

Every summer, more than 200,000 visitors flock to Lake Constance to experience musical theater in an unparalleled open-air atmosphere. The combination of a unique natural setting and a spectacular stage design is enhanced by perfect lighting and sound technology – an immersive masterpiece.

**B**ut the Bregenz Floating Stage is more than just a stage on water: it's a stage in the weather, in the light, and in constant interaction with nature. Anyone daring enough to perform opera here joins forces with unpredictable elements, defying sun and heat, standing firm against rain, wind, and lightning. Every evening is unique because everything out here is a little grander, a little riskier - and in my view, far more beautiful than any opera house.

The story of performances on the lake – and with them the Bregenz Festival - began back in 1946 on two gravel barges in the Bregenz Gondola Harbor. In 2008, even James Bond chased villains across the Floating Stage and through the Festival Hall in the film Quantum of Solace. „Festivals like this are the ideal gateway drug“, declared the Frankfurter Allgemeine Zeitung, while ZDF heute-Journal headlined: „For a few weeks in summer, Bregenz is always a bit of Hollywood.“

### Editorial

The gripping and extraordinary production that German director and set designer Philipp Stölzl created for the Floating Stage for the 2024/25 season, featuring Carl Maria von Weber's romantic opera Der Freischütz, was enthusiastically received by audiences in the summer of 2024 and sold out every evening. The opera will return to the Bregenz stage in 2025, with the revival premiere set for July 17 - more information can be found in this issue.

I warmly invite you to experience this unparalleled spectacle live. Ralph Larmann's images, as always, uniquely capture the atmosphere and offer a first impression.

Warm regards,

Wolfgang Urstadt

**PS** As usual, this issue includes a 2025 annual planner, this time with all relevant trade fairs. On the back, you'll find a glimpse of the light installation People in Parliament – 75 Years of Living Democracy in Berlin, also perfectly captured by Ralph Larmann, just like the cover image.



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## BUSINESS

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### COMPANIES & MARKETS

Latest news from the event technology sector	10
Gahrens + Battermann: 40 years of full service excellence	16
Goldensea acquires SGM	16
Prolight + Sound 2025: Grand anniversary show	18
More space for ADJ	20
Amy Winehouse: The unmatched	22
EVVC: MFT – „If you don't get Generation Z, you lose“	23
NIYU Event Production: The key to the future	24
SAE Institue Nuremberg: Classes have started	25
VTFF: Preserving Germany as a business location	25
Starting shot for Wien Holding	26
FWD: Federal Conference aim – future-proof and strong	27
FWD: political talks on the tour bus	27
BDKV: Signs of a new beginning	28
HS Mittweida study: Events as drivers of tourism effects	29
AUMA study: 1 trade fair visit avoids 5 business trips	30
IST study: festivalgoers don't care about sustainability	31
Samsung: New German headquarters	32
dB Technologies: New branch with Audio Arena	33
„The Freischütz“ on the Bregenz Lake Stage: An eerie village	34
German Future Prize for „Digital Light“	52

### PORTRAIT

Multisenses

45

### PEOPLE

The industry's carousel of people

48

### SPECIAL

Poster „People In Parliament – 75 years of democracy“ by Ralph Larmann  
Year Planner

73

## EQUIPMENT

---

### AWARDS

Current prizes, honors and awards

Pik AG, Canon, Fischer Appelt and Udo Lindenberg's „Panik City“

49

### SOUND

Current manufacturer information

64

### AV-MEDIA TECHNOLOGY

Current manufacturer information

68

### LIGHT

Current manufacturer information

70

### MIX

Current manufacturer information

72



## ACCESS ALL AREAS

### TRADE SHOWS & EVENTS

Meet, Vienna: A complete success	89
Huss opens Demo Center	90
SAE Awards: Winners from around the world	94
IBC, Amsterdam: AI at the center	95
20. Festival of Light: Visitor record	96
Leatcon, Hamburg: An indispensable meeting point	100
Sennheiser Sound Expert Seminar	104
Future Of Festivals, Berlin: International Platform	108

### AV-MEDIA TECHNOLOGY

TV Markiza: Optimal studio flexibility	112
A Museum for Avicii	112
Kairo: In the Olympic City	114
	116

### INSTALLATIONS

Legendary concrete shell	118
School Center Vihtavuor, Finland: Architectural brilliance	118
Chambinzky Harbor Theater, Würzburg: Cold white man	122
Country-Flair at Ole Red Las Vegas	123
Sun Princess: On maiden voyage	124
Rooftop-Bar „Rosa Sky“	126
Szigligeti Theater, Szolnok: 24/7 Lifting and moving stage scenery	128
Shortcuts	130

### RENTAL

Rolling Stones: Diamond fever	132
Adelepolis – Weekends with Adele	132
Scooter: The „Thirty, Rough & Dirty“ storm	136
Mikki Kunttu: The Lord of the Ring (Cycle) + Interview	146
Pink: All summer long	150
Bruno Mars' 24k Magic World	156
In the heart of Münster	168
Founding anniversary in Saudi-Arabia: Twister in Riyadh	172
Blink-182: Reunion, one more time	174
King Bushido forever	178
Megan Thee Stallion and her Hotties	180
Metallica: No repeat weekends	184
Electric Love Festival: Motto #newera	186
Jan Delay: The anti-material battle	188
Black Sabbath – The Ballet: „Tony Iommi attends regularly now“	190
Dua Lipa: Detail-loving pixelmapping	192
Green Day: „OK, let's do it!“	196
Shortcuts	198
	202

## GUIDE

EDITORIAL	3
WHO IS WHO	6
DATES	8
BUSINESS 2 BUSINESS	204
LAST BUT NOT LEAST / IMPRINT	206

# UNSER STANDARD: ABNORMAL STARK.



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## Chris Skeith

The Global Association of the Exhibition Industry (UFI) has selected Chris Skeith as its next Chief Executive Officer. Skeith will assume his position on January 1, 2025, succeeding Kai Hattendorf. He joins UFI from the Association of Event Organisers (AEO), the leading association for event organizers in the United Kingdom, where he has served as CEO since 2014.

Chris Skeith has been actively involved with UFI for many years, serving as Chair of the Association Committee and as a member of the Executive Committee. In his role at AEO, he has worked closely with the management team on a variety of matters, from event management to advocacy, making him well-qualified to take on the role of UFI CEO.

Chris Skeith brings nearly 20 years of experience in association work within the UK's events industry to his new position. He played a key role at the Events Industry Alliance (EIA), where he oversaw the merger of AEC and BECA to form ESSA (Event Supplier & Services Association).

In 2010, he also became Director of ESSA's sister organization, the AEV (Association of Event Venues). He remains a Director of the EIA, representing the sector to the government and public authorities.

In recognition of his contributions to the events industry, Chris Skeith was awarded an Order of the British Empire (OBE) in the 2021 Queen's Birthday Honours List.

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nable production methods. Claus Pfeifer (Sony Europe) and Jens Schilder (RTL Germany) will discuss the challenges of 5G technology in media production in their presentation „Remote Production with 5G - New Technology, New Opportunities“. They will share experiences from a proof-of-concept during the European Football Championship in Cologne and the state elections in Dresden.

Georg Lenzen (VP Product at LTN) will provide insights into the advantages of a managed multicast IP network for remote productions, particularly in decentralized setups. For the first time, the Association of German Sound Engineers (VDT) will participate: Prof. Felix Krückels from Darmstadt University of Applied Sciences will speak on „3D Immersion in Live Sports“ and explore the challenges and opportunities of immersive audio production. Roman Rehausen (Jünger Audio) will address „Paris 2024 - The Path to Immersive and Accessible Audio“, highlighting the latest standards for immersive audio.

With videos becoming increasingly important in corporate communication, Thorsten Kraus (Samsung Electronics) will demonstrate in „Using LED Walls in Corporate Studios“ how innovative LED solutions for virtual productions can optimize creative processes while saving time and costs. Maurice Camplair (Crestron) will explain in „Artificial Intelligence or Smart Solution? A Look at AI and Its Applications in Media Technology“ how AI is used to make spaces smarter and more sustainable, offering insights into the AI training process.

The traditional Get-Together will begin at 6 p.m. on the first evening, featuring networking, drinks, snacks, and great music. The Hamburg Open 2025 will take place on January 15, 2025 (10 a.m. to 6 p.m.,

■ Under the motto „People - Media - Technology“, the kickoff for the Hamburg Open, the most important event for the German-speaking broadcast and media technology industry, will take place on January 15 and 16, 2025. The trade fair will once again become the meeting point for everyone interested in the latest technologies, presentations, and networking opportunities in the media, streaming, and broadcast technology sectors. The Hamburg Open Forum will focus on smart, efficient, and sustain-



Get-Together from 6 to 10 p.m.), and January 16, 2025 (10 a.m. to 4 p.m.) in Hall B6 of the Hamburg Messe (South Entrance, U-Bahn Messehallen). With the promo code ETNOW, a limited half-price ticket is available for just 20 instead of the regular 45. The expo ticket includes professional presentations, complimentary snacks and drinks, and the legendary Get-Together. More information about the program can be found at [www.hamburg-open.de/programm/gesamtprogramm](http://www.hamburg-open.de/programm/gesamtprogramm).

■ The Sustainable Events Conference (SECON), focused on sustainability in the German-speaking event industry, will take place on February 24 and 25, 2025. At the heart of SECON is the concept of „Twin Transformation“, combining digitization and sustainability. The event will be held at the Landgut Stober in Nauen near Berlin, chosen as the venue by the organizers, the German Convention Bureau (GCB) and the European Association of Event Centers (EVVC). The various impulses and workshop sessions will address topics such as implementing sustainable logistics concepts, the need for standardized CO2 measurement methods for events, and the connection between smart production and waste management. Discussions will also cover mobility, sustainable catering and food waste, and the energy efficiency of event venues.

In addition to thematic sessions, excursions and joint activities for participants will form an essential part of the event program. All stakeholders in the event ecosystem are invited to participate actively - from providers such as convention cen-

ters, arenas, conference hotels, and event venues to destination marketing organizations, mobility service providers, event agencies, and digital product and service providers. Additional cooperation partners include AUMA, VPLT, and FWD.

■ The BOE International 2025, the leading trade fair for experiential marketing, will kick off the new year from January 15 to 16. Two days packed with high-tech innovations, networking, and knowledge transfer will be the focus, along with stages dedicated to future-oriented topics such as AI in the event industry and a wide selection of MICE offerings, hotels, and locations. Market leaders and trendsetters from all areas of live communication are expected. The extensive supporting program will once again feature action-packed stages with renowned event experts and speakers from the industry. Unfortunately, the event coincides with the Hamburg Open, which takes place simultaneously.

■ Barely after Leatcon 2024 in Hamburg has concluded, the organizer returns with the smaller Leat X on March 19 and 20, 2025. This event will take place at Ofenwerk Nürnberg (Nuremberg) and offers a relaxed and intimate setting, providing an opportunity to network and experience the latest innovations in the event industry up close. Leat X Director Duc Nguyen will once again be supported by leading brands from the event technology sector. This boutique event traditionally precedes the „larger“ Leatcon, which will follow in the fall of 2025.



# Was steckt hinter den Kulissen? Beckhoff Technologie



Beckhoff bietet eine umfassende Steuerungslösung, die sich perfekt für die Unterhaltungsindustrie eignet:

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## „A New World Blazing“

An exhibition by photographer Sharon Latham at the Gibson Garage London showcases new and previously unseen images of Noel Gallagher's High Flying Birds.

„I've had the good fortune to work with some of the best photographers in the world over the years – Sharon is definitely one of them“, comments Noel Gallagher. The exclusive photo exhibition at the Gibson Gallery is open daily for six months and curated by the Red House Originals Gallery.

Sharon Latham began her career in 2010 with the football club Manchester City, becoming the first woman to hold the position of official photographer for a Premier League club. She is now well-known for her close association with Noel Gallagher and her photographs of his High Flying Birds.

After previously photographing Oasis – Gallagher's most famous band to date – at Knebworth, Maine Road, and the Etihad Stadium, she met him again at Manchester City.

„The first interview that Manchester City coach Pep Guardiola ever gave was with Noel, and that was also my last shoot before leaving the club“, Latham recalls. „I asked Noel if I could accompany him on tour for a few of his concerts, and he said, 'Yeah, Shaz – no problem'. It was only supposed to last two weeks, but it ended up being five years.“

„We're thrilled to host Sharon Latham's 'A New World Blazing' here at the Gibson Gallery in London“, says Lee Bartram, Head of Commercial & Marketing EMEA. „Gibson has a long-standing and great relationship with Noel Gallagher, and fans will love these captivating and emotional moments. Sharon's photos make you feel as if you're right there.“

*The Gibson Garage London, 61-62 Eastcastle Street, London, W1W 8NQ  
Monday-Saturday: 10 a.m. - 7 p.m., Sunday: 12 p.m. - 6 p.m.*





# Bully Herbig, Media Personality

This is his title at the 25th Radio Regenbogen Award, which will take place on April 4, 2025, at Europa-Park. Other award recipients include Barbara Schöneberger, Wolfgang Niedecken (BAP), Milow, Sophie and the Giants, and Florian Schroeder. The ceremony will be hosted by Mirja Boes.

The anniversary edition of this audience award takes a nostalgic look at history, fittingly coinciding with Europa-Park's 50th anniversary. Almost just as long, Wolfgang Niedecken has been performing on stage. The BAP founder will receive the Lifetime Achievement Award. Australian artist Cyril will be awarded Song of the Year 2024, while Sophie and the Giants from the UK are recognized in the Pop International 2024 category.

**All Award Recipients/Presenters:** Pop International 2024: Sophie and the Giants (Presenter: Jochen Breyer), Comedy 2024: Florian Schroeder (Presenter: Mirja Boes), Newcomer National 2024: Fast Boy (Presenter: Enissa Amani), Media Personality 2024: Michael „Bully“ Herbig, The Voice 2024: Milow (Presenter: Stephanie Stumph), Media Personality (Female) 2024: Barbara Schöneberger (Presenter: Günther Jauch), Lifetime Achievement 2024: Wolfgang Niedecken (Presenter: Hannes Ringlstetter) Song of the Year 2024: Cyril (Presenter: Malaika Mihambo)



# Extensive Program at ISE 2025

At the ISE 2025, taking place from February 4 to 7 at Fira de Barcelona Gran Via, AVIXA will present a comprehensive educational and networking program, including a full summit agenda, Broadcast AV at the AVIXA TV Studio, interactive sessions at Xchange LIVE, and more.

„This year, we will present the largest ISE content program ever, with over 250 hours on stage and in conference rooms“, says AVIXA CEO David Labuskes. „From full-day summits on the digital workplace to panel discussions on sustainability at AVIXA Xchange LIVE, ISE will address the most pressing topics in the AV industry. It’s a must for AV professionals, offering everything from inspiring keynote speakers to an expansive exhibition space.“

## Summit program

The Audiovisual and Integrated Experience Association (AVIXA) will present a comprehensive summit program at ISE, which includes the AV Broadcast Summit, Control Room Summit, Digital Signage Summit, Education Technology Summit, Smart Building Summit, and Smart Workplace Summit. Additionally, AVIXA has curated tracks at ISE for five megatrends driving the industry: AI, Audio, Cybersecurity, Retail, and Sustainability.

Furthermore, from Tuesday to Thursday, from 3:00 to 6:00 p.m., the AVIXA Congreso will take place in Spanish at CC5.3. This free congress offers 12 curated sessions on a range of topics, including artificial intelligence, AVoIP, extended reality (XR), immersive technologies, and sustainability in AV.

## AVIXA TV Studio

AVIXA TV will broadcast live from the AVIXA TV Studio in Hall 8.1 at ISE, showcasing the latest technology for integrating broadcast-quality video into corporate environments with practical demos and lively discussions. The AVIXA TV studio’s presenter desk will be equipped with Ross Video’s Voyager Tracking Solution, which introduces AR elements into the broadcast, along with a virtual green-screen stage supported by Voyager Trackless Technology. The studio will also feature control room support from XPression, Tria Express Duet video server, and Ultrix Carbonite routing and switching platform. Additionally, the graphics will be created by Ross Video’s Rocket Surgery team.

The AVIXA TV Studio includes a Barco 6x6 True Pix video wall at the presenter desk and a Barco 4x4 LED XT video wall in the podcast area. Dynamic imagery will be powered by Ross Video’s XPression Tessera. Shure will provide SM7B microphones and boom stands, as well as Twin Plex headsets for the livestream and podcast area, where daily podcast recordings will take place. Forecast Consoles will supply desks for the podcast area and the production team.

Visitors to the AVIXA TV Studio booth will have the opportunity to participate in interactive workshops, experience the AVIXA TV livestream, follow interviews with experts, and attend

„Bites and Insights“ sessions on topics like remote production, live podcast recordings, and more.

AVIXA TV will broadcast from Monday, February 3, to Friday, February 7, from ISE. The livestream will be available at [www.avixa.tv](http://www.avixa.tv), as well as on LinkedIn and YouTube. The full program can be found at [www.avixa.org/avixa-tv-at-ise](http://www.avixa.org/avixa-tv-at-ise).

## AVIXA Xchange LIVE

AVIXA Xchange LIVE returns to Hall 3 at ISE, offering four days of interactive sessions on topics including artificial intelligence, cybersecurity, digital signage, certification, wellness, and more. On Friday, Framework will take the stage, focusing on career opportunities in the AV sector.

On Tuesday at 12:15 p.m., the session „Sustainable AV: How sustainability triples your tech bottom line“ will highlight profitable sustainability strategies that can help businesses support people and the planet. On Wednesday at 12:15 p.m., „Using AV to Drive Wellness in the Workplace“ will explore how AV can be used to create a healthy work environment that balances productivity and well-being.

On Thursday at 3:00 p.m., Xchange LIVE will host the session „Cybersecurity in AV - 5 Things You Should Know“. Participants will hear from experts Florian Krueger, CEO of Unyted, Shaun Reardon, Principal Cybersecurity Consultant at DNV AS, and Graeme Scott, Global Training Manager at Harman.

On Friday at 12:00 p.m., the session „The Invisible Crafts of Creative Technology“ will explore the complexity of digital work and why we tend to undervalue computer-based work. The panelists will discuss the various skills required to successfully deliver cutting-edge visual presentations and how this specialized expertise can be best marketed and valued.

Additionally, Xchange LIVE will host daily meetings for AV marketing experts, Women’s Council groups (Spanish, Italian, and the DACH group), and much more throughout the week.

## AVIXA Member Lounge

Located in Hall 3 next to Xchange LIVE, the AVIXA Member Lounge will offer visitors the chance to meet the membership team and learn about certifications such as Certified Technology Specialist (CTS) and Audiovisual Network Professional (ANP). Visitors can also enjoy AVIXA’s hospitality while networking with fellow professionals.



# Bruuuuce...

He's unstoppable: Bruce Springsteen is heading back on tour again this year, with concerts scheduled for June 2025 in Berlin, Frankfurt, and Gelsenkirchen. At the end of last year, he also released his concert film „Road Diary“.

Springsteen and The E Street Band have extended their 2025 European Tour, adding eight new concerts to the previously planned stops in Marseille, Prague, and Milan. Beginning May 17 in Manchester, each of the new shows will take place in cities not visited during the 2023-2024 tours, including new dates in England, France, Germany, and Spain. The German dates are as follows: June 11 at Olympiastadion, Berlin; June 18 at Deutsche Bank Park, Frankfurt; June 27 at Veltins Arena, Gelsen-

kirchen. The concerts are organized by Live Nation. The announcement of the additional tour dates came shortly before the release of „Road Diary: Bruce Springsteen and The E Street Band“, directed by Thom Zimny, which has already premiered on Hulu and Disney+. The official trailer, offering a detailed behind-the-scenes look at the making of Springsteen's legendary live performances, is available at [www.brucespringsteen.net](http://www.brucespringsteen.net).







## 40 Years of Full-Service Excellence

Gahrens + Battermann, a leading event technology service provider based in Bergisch Gladbach, Germany, is celebrating its 40th anniversary this year.

A strong service-oriented approach by Kurt-Werner Gahrens and Jürgen Battermann led to the company's founding on September 1, 1983. Initially focusing on the sale and rental of audio and video equipment, Gahrens + Battermann started its journey with passion and commitment to the event industry and its clients.

In 1984, the company introduced its first in-house innovation, the „Scouty“, a monitor with an integrated video recorder - a groundbreaking product that became a resounding success, followed by an entire product family.

During the 1990s, Gahrens + Battermann expanded by opening branches at key trade fair locations in Germany, enabling closer customer relationships and faster on-site service. The rental portfolio grew to include cube video walls, audio, and lighting technology.

By 2000, IT solutions were integrated into the company's offerings - a key step toward becoming a full-service provider. G+B Interactive was launched, providing digital event solutions, from participant management to interactive communication.

Training has always been a priority for G+B. In 2006, the G+B Academy was established, offering tailored training programs for the industry,

ranging from exam preparation courses to comprehensive certification programs for event technology specialists.

To foster a culture of entrepreneurial thinking, G+B introduced employee profit and capital participation programs early on. This approach strengthens employee engagement and customer service while boosting staff retention amid growing competition for skilled professionals.

The company's core brand philosophy - „Inspiring People“ - reflects its mission to passionately and creatively deliver outstanding events.

Today, Gahrens + Battermann stands as an innovative, full-service event provider with experienced teams across eight locations in Germany, handling thousands of events annually. The company offers state-of-the-art hardware and software solutions for all event formats.

Having faced the challenges of the pandemic, Gahrens + Battermann pivoted toward digital and hybrid event formats. These are now a permanent part of the company's portfolio. „We are proud to have overcome this challenge and to look back on 40 successful years“, says Dr. Norbert Gahrens, who leads the company alongside Jörg Hendrichs and Carsten Zwerg.

## Goldensea acquires SGM

SGM Light AS has recently been acquired by Goldensea. The company's operations, which had been temporarily halted, will now resume under the same name.



Founded in 1975 in Italy and now based in Aarhus, Denmark, SGM is considered a pioneer in IP65 moving lights. The company has recently focused on architectural lighting while maintaining a reputation for technological innovation. SGM was the first to introduce weather-resistant moving head spotlights.

SGM's patented technologies span both architectural and stage lighting, with products used in high-profile projects worldwide, such as the Louis Vuitton headquarters in Paris, the Stade de France, Pittsburgh's

Three Sister Bridge, Singapore's Sky Tree Lighting, and concerts by Adele in Munich and Metallica during their European tour.

Goldensea's financial investment aims to stabilize and grow SGM after recent challenges. „Our investment in SGM aligns with Goldensea's strategic and long-term development plans“, says Christopher Agius Ferrante, VP of Goldensea.

All employees at SGM's Danish location will retain their positions. Additionally, existing product warranties will continue to be honored.



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Die ATEM Constellation HD Familie umfasst Modelle mit bis zu 40 unabhängigen 3G-SDI-Eingängen, jeder mit eigenem Up- und Crosskonverter. So lässt sich jedes 1080p-Quellsignal in die Videonorm des Mixers umwandeln. Selbst wenn Signale in verschiedenen Fernsehnormen an den SDI-Eingängen anliegen, funktioniert alles prima.

## Beliebig zuweisbare 3G-SDI-Ausgänge

ATEM Constellation HD Modelle verfügen über enorm viele autonome 3G-SDI-Ausgänge. Die SDI-Ausgänge sind sehr leistungsstark. Somit können Sie jede SDI-Eingabe bzw. jede interne Quelle separat an einen beliebigen SDI-Ausgang routen. Ideal, um unabhängige Feeds an Bühnenbildschirme, Masterrekorder oder Streaming-Prozessoren zu leiten. Alle SDI-Ausgänge unterstützen RP-188-Timecode, SDI-Kamera-steuersignale, Tally und Talkback.

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Der mischerinterne Multiviewer lässt Sie mehrere Quellen auf einem Bildschirm kontrollieren. Alle externen SDI-Eingaben und alle internen Videoquellen sind beliebigen Ansichtsfenstern zuweisbar. Einzelne Multiviewer lassen sich für jeweils 4, 7, 10, 13 oder 16 parallele Ansichten einrichten. Beim 4-M/E-Modell ergibt das beachtliche 64 Ansichten! Überdies können Sie in jede Ansicht eine Tally-Anzeige, Quell-Labels und VU-Meter als Overlays einblenden.

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Das ATEM Micro Panel erweitert ATEM Software Control für wenig Geld um ein Hardware-Panel. Ausgestattet mit den gleichen hochwertigen Tasten wie ATEM Advanced Panels, vermittelt es ein echtes Broadcast-Erlebnis. Das Pult bietet sogar vier M/E-Tasten zum Steuern eines mächtigen 4-M/E-Mixers! Es wird über USB-C oder Bluetooth verbunden und von einem großen internen Akku gepowert. Das perfekte mobile Pult!

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## Grand Anniversary Show

30 years of passion for event technology: Prolight + Sound, the international trade fair for event and entertainment technology located in the heart of Europe, celebrates its milestone anniversary by focusing on the future. From April 8 to 11, 2025, the trade show will welcome manufacturers, decision-makers, technicians, and creatives from across the industry for a grand anniversary showcase.

With current industry topics, expanded events, and targeted educational offerings, the show aims to provide fresh insights and knowledge sharing. Long-standing partnerships with numerous exhibitors are reflected in their strong commitment to the event, with many renowned companies already confirming their participation for 2025. Mira Wölfel, Director of Prolight + Sound, emphasizes: „The 30th anniversary of Prolight + Sound is a perfect opportunity to look to the future with renewed energy. We aim to offer exhibitors, visitors, and partners a particularly inspiring environment with a stronger technical focus and optimized networking opportunities.“

Based on numerous discussions with exhibitors, the upcoming Prolight + Sound will focus on three main themes, which will be represented in both the professional program and product solutions. Under the title „ProGreen: Impulses for a more sustainable event industry“, the latest trends and developments driving the environmentally-friendly direction and design of the event industry will be highlighted. The focus „Future-Scapes: Experience Worlds between Immersion and AI“ will explore the fascinating possibilities that immersive technologies and artificial intelligence offer for creating entertainment experiences.

At the heart of the top theme „Multitech: Flexible and Smart“ are innovative, versatile technologies and concepts, and their influence on the event industry.

For many years, theater and stage technology has been one of the most prominent and fastest-growing pillars of Prolight + Sound. In the new concept, all aspects related to the theater will be united in a central hub. This will provide the theater community with maximum visibility and valuable synergies. In addition to the exhibition area in Hall 12.0, a dedicated space for the theater sector will be created. It will feature a networking spot, a café with a daily happy hour, and the new Theatre Stage. Among other events, the new „Theatre Talk“ will take place on several days. This format offers exhibitors from other sectors the opportunity to present their company and products to a theater-focused audience.

Also located on this stage is the program of the newly conceived „Theatre College“, which is created in cooperation with VPLT. The expert-curated, professionally moderated „Guided Tour Theatre & Light“ will guide interested visitors to particularly exciting product innovations and news over the four days of the fair.

The Pro Audio area in Hall 11.0 will also be the focus of new formats in 2025: The new „Mix Lab“ will cater to both live-tech enthusiasts and studio professionals with two areas: „Live Mix Consoles & FOH Technology“ and „Studio Consoles, Mixing & Mastering“. In addition to workshops and knowledge transfer, the focus here will be on networking between manufacturers, engineers, and trade visitors.

The new area „Music One X“ is an evolution of the „Performance + Production Hub“ and is created in collaboration with the Sample Music Festival (SMF). It combines music, conferences, and exhibitions in an interactive, interdisciplinary special area with a hands-on open innovation approach. The focus is on the connection between creativity and technology, as well as the networking of industry, communities, and companies. Spanning over 3,000 sqm, the format will feature hands-on technology, workshops, live events, Q&A sessions with experts, showcases, and content creation.

In the Open Air „Live Sound Arena“, visitors will once again be able to experience the sound of powerful PA systems under real-world conditions. On the „Silent Stage“, the company In Ear will showcase its integrated sound technology solutions. The „Pro Audio College“, implemented in collaboration with the Verband Deutscher Tonmeister (VDT), will offer high-level international workshops and seminars for audio professionals, as well as for interested young professionals in the live and studio sectors.

In 2025, the professional audience can also expect the largest international lighting offering in the event industry (Hall 12.1). A variety of renowned manufacturers, including all key players in the field, will present their product innovations and news in Frankfurt. A focus will be placed on sustainable and energy-efficient solutions, as well as the integration of artificial intelligence (AI) into modern lighting technology.

The „Light Lab“, created in collaboration with the Hamburg University of Applied Sciences (HAW), will enter its second round during the anniversary show. Experts will offer knowledge and demonstrations on current topics.

The „Women in Lighting Lounge“ will serve as a central meeting spot for female professionals and interested newcomers, a venue for interviews, and a source of information about career scenarios.



The motion picture sector, realized in cooperation with the Federal Association of Television Camera Operators (BVFK), will become the hotspot for image and video technology at Prolight + Sound 2025. An expanded studio space, an impressive video wall, and specialized workshops will open up new perspectives for participants. Over three days of the fair, live shows with renowned guests will focus on exciting topics related to technology, security, and the future of motion pictures. With interactive offerings such as the Camera Future Congress and a tour of a modern OB van on-site, the area will become a center for hands-on learning and networking.

With the top theme „Pro Green“, Prolight + Sound 2025 aims to address the growing awareness in the industry regarding ecological responsibility. Topics such as sustainability, energy efficiency, and green events will be even more prominently featured in the anniversary year, including a series of high-profile keynotes on the Main Stage (Hall 11.0). The „Green Sessions“ will provide the EVVC with new impulses for a greener event industry. The „Guided Tour Sustainability/Green Events“ will offer participants professionally moderated, free fair tours providing an overview of particularly sustainable product innovations and new developments.

Prolight + Sound will also focus on promoting young talent and recruitment. The main hub for this will once again be the Future Hub (Hall 11.0). On the campus of this area, renowned educational institutions will inform about training and educational opportunities in the event sector. In the Career Center, visitors can directly engage with companies that have open job positions. In the Startup Area, new brands will present themselves, while the Networking Lounge invites attendees to relax and connect. On Future Talents Day (Friday, April 11, 2025), young professionals will have the opportunity to learn about the diverse career opportunities in the event industry and network.

In close cooperation with the VPLT, the „Prolight + Sound Conference“ will offer concentrated industry expertise on all days of the fair - from the industry, for the industry.

Inaugural Advisory Board Meeting (l-r): **Frank Trautmann** (BVFK), **Dominique Ewert** (Messe Frankfurt), **René Tumler** (EVVC), **Kerstin Horaczek** (Messe Frankfurt), **Michael Herweg** (Roxx), **Helge Leinemann** (VPLT), **Christian Jordan** (HK Audio), **Mira Wölfel** (Messe Frankfurt), **Tobias Weber** (Format C), **Iris Jeglitzamoshage** (Messe Frankfurt), **Meike Schmitz** (RCF), **Niklas Bohr** (Area Four Industries), **Nico Wiehart** (Messe Frankfurt), **Tobias Berghaus** (L&S).

The professional program will also be further expanded and specialized in the anniversary year. The curated lecture offerings will focus even more on specific topics with a technical focus. As part of the Prolight + Sound Colleges (Pro Audio College, Camera College, Theatre College), the event will offer bilingual seminars and workshops on a variety of current industry topics. For the first time, both professionals and newcomers from the event and entertainment industries will give talks on their specific areas of expertise.

This year, the Prolight + Sound team has announced the reintroduction of a trade fair advisory board (pictured above). The body will act as an important source of inspiration and ideas and contribute significantly to the further development of the event.

A special focus will be placed on the continued internationalization of Prolight + Sound. Based on its extensive network of contacts and the varied strategic orientations of the companies, the advisory board, in collaboration with Messe Frankfurt, aims to sustainably expand the reach of the trade fair on a global level. Additionally, the members will significantly contribute to shaping the event program by providing ideas and topics.

The advisory board includes representatives from the following companies: Adam Hall, Ambion, Area Four, Ayrton, dBTechnologies, Format C, HK Audio, L&S, Lightpower, Meyer Sound, RCF, and Roxx, as well as the associations BVFK, EVVC, and VPLT. The central topic of the first meeting was the promotion of young talent and continued education within the industry. [www.prolight-sound.com](http://www.prolight-sound.com)











## More space for ADJ

The ADJ Group is expanding: Hall 4 now houses brand-new QC facilities, specially equipped R&D laboratories, a dedicated service area, an expanded spare parts department, and additional space for future growth.

„We’ve also reduced our CO2 footprint by installing a solar power system on the roof. This system supplies energy to the building and powers charging stations for electric vehicles“, explains Toby Velazquez, President of the ADJ Group. The facility offers a total area of 4,371 sqm across three floors, including 1,250 sqm dedicated to QC operations. The QC area features five electrically height-adjustable workbenches, each 25 meters long, and one 18-meter-long bench.

The space is equipped with a dust barrier to maintain a clean working environment. Specialized R&D labs have been established for ADJ, Elation, and Obsidian Control System. The dedicated service area accommodates up to 20 technicians, while the spare parts department boasts an impressive 46,000 storage compartments. Additionally, office and work-spaces provide room for future expansion.

Relocating the QC operations to Hall 4 allows Hall 1 to be optimized for order processing, featuring new storage racks with a capacity for 405 pallet spaces. A total of 424 solar panels, with a peak capacity of up to 214 kW and an annual production of 200 MWh, offset 100 tons of CO2 per year - equivalent to the air purification provided by approximately 4,700 trees annually.

The new hall was unveiled during the international distributor meeting in Kerkrade, Netherlands. Marc Petzold, Managing Director of LMP, highlights: „It’s fitting that this year’s distributor meeting was held in the new facilities. LMP was honored with the awards for ‘Best Overall Performance’ and ‘Best Service 2024’. Excellent after-sales service has become a crucial competitive advantage.“

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## The unmatched

In 2024, „Back to Black“, the captivating tribute to Amy Winehouse, premiered in theaters. With Dolby Atmos, fans have the opportunity to experience her music in an entirely new way before and after the movie.

With more than 30 million albums sold and over 80 million streams of her songs each month, Amy Winehouse remains an icon, and her musical legacy continues to live on. Her second album, Back To Black, not only brought her global fame but also five Grammys - a record at the time.

The biographical film Back to Black, directed by British filmmaker Sam Taylor-Johnson, tells the story of the musician with unparalleled talent and exceptional charisma.

British actress newcomer Marisa Abela shines in the lead role, bringing Amy Winehouse's iconic songs to life with her own voice. „I wanted to make a film from Amy's perspective. That's why I decided to tell her

story with her own words and songs. 'Back to Black' won five Grammys and sold over 16 million copies - and that's the backdrop for my film“, says Sam Taylor-Johnson.

Thanks to the support of the Winehouse family and Universal Music Group, as well as musical contributions from Nick Cave and Warren Ellis, Back to Black became an authentic cinematic experience. The audience gets to experience Amy Winehouse and her music in the immersive sound of Dolby Atmos.

Both of her studio albums, „Frank“ and „Back to Black“, are available in this immersive sound experience.

[www.backtoblack-derfilm.de](http://www.backtoblack-derfilm.de)





## „If you don't get Generation Z, you lose“

Around 320 attendees traveled to Rostock for the MFT (Management Conference). The focus of the 25th MFT, as usual, was on education, networking, and exchange. With sessions and workshops on topics like Sustainability and AI, the program hit the pulse of the times.

For the 25th time, the EVVC invited attendees to the MFT and set sail towards „North-East“, as the host venue this year was the Stadthalle Rostock.












Felix Beilharz opened the conference program with his keynote on the future of the industry, where he made it clear: „If you don't get Generation Z, you lose“. The closing keynote, delivered by Frédéric Letzner, focused on mental health in the stressful workday, offering insights that sent participants off at the end of Day 2.

In total, 16 different sessions examined all areas of work in the event industry. In addition to sustainability, law, and future topics, subjects like artificial intelligence, sustainable venue renovations, and diversity were also in focus.

The partner companies of the EVVC gave an insight into their expertise, presenting their latest solutions and innovations - from digital signage to stage lighting and video marketing.

To better explore the destination Rostock, participants set out on various „Site Inspections“ across the city at the start of the conference. The Warnemünde Cruise Center right on the coast and the Rostock Baltic Sea Stadium were just two of the many venues that opened their doors exclusively for the participants. The Community Evening rounded off the conference with an innovative gastronomic concept.

The next MFT will take place on September 29 & 30, 2025, at the recently reopened Hyparschale in Magdeburg.

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## The key to the future

What began in 2004 with a vision today stands for professional, holistic planning and execution of international premium events. NIYU Event Production, based in Berlin and Stuttgart, has made a name for itself 20 years later as a „Production Company“.



„Production Companies are still uncommon and somewhat unknown in Germany, but they consistently close the gap to professional, holistic implementation with the necessary know-how in interdisciplinary planning and execution“, explains Thomas Hofmann, one of the two founders and current Managing Director. „We are convinced that Production Companies - or technical implementation agencies - are the key to the future of the event industry“, Hofmann continues. However, this direction wasn't as clear when the company was founded in August 2004, when Thomas Hofmann and Niko Hocke took the leap into entrepreneurship in the event industry. Even then, the focus was already on networking.

„With the experience of the past years in a modern AV company, we wanted to use our know-how and simply needed a billing model while sharing the risk 50/50“, summarizes Niko Hocke, Founder and Managing Director, about the company's beginning. Through their existing network, they were able to establish contact with Audi. At that time, NIYU had the vision of offering their services as a „full-service producer“. However, the need from the Ingolstadt-based car manufacturer was „only“ for technical planning. NIYU seized the opportunity, and after the third tender, the first contract in the automotive sector followed for the Tokyo Motors-how in 2005.

The company started as a „Two-Man Show“, consisting of the founders, but in 2006, with an order for permanent installation for Adidas, the first full-time employee was added. „Our longest-serving employee, André Twardawa, initially worked freelance, then became permanent with

us - and still is today“, comments Hocke. He was followed by two more employees, and they moved into the next two-room office in Berlin-Mitte. Numerous projects around the world solidified the direction and capabilities of the engineering office. When BMW, another automotive client, joined in 2012, the NIYU team grew further, and the company moved to its current office in Berlin-Tempelhof.

Thanks to long-term successes and its existing network, NIYU was able to navigate the Corona pandemic safely. In the midst of the pandemic's professional restrictions, the second company, NIYU.Productions GmbH, was founded to implement events holistically as a Production Company. Due to this new direction, the management team was expanded to include Mike Doerfling, Oliver Ohrndorf, and Fabio Stein to cover all disciplines and ensure the company's healthy growth. In addition, a new office was opened in Stuttgart in 2023. Today, the company employs around 20 people.

NIYU Event Production is now one of the leading premium event production companies offering support throughout the entire event project cycle: from partner in the idea and concept phase to technical planning and full execution. Reflecting on the past 20 years, Thomas Hofmann notes: „What do you say after about 20 years in business? You say thank you, but that word is too small. Niko and I still love the world we get to work in, and we will continue to give everything to make sure we infect many more people with this virus.“

[www.niyu.de](http://www.niyu.de)



## Training facility launched

Just in time for the start of the winter semester 2024/25, the SAE Institute opened a new training facility in Nuremberg's Kohlenhof district.

The first programs offered are in the fields of Audio Engineering, Film Production, Game Art & 3D Animation, Games Programming, and VFX Animation. Starting in 2025, the course offerings will be gradually expanded. With the new campus in Nuremberg, the SAE Institute is now represented in ten major German cities. After the completion of the development phase, more than 30 full-time instructors, along with additional freelance staff, will be responsible for training up to 250 students at the campus in the Franconian metropolis.

The school is equipped with state-of-the-art technology. On 1,200 square meters, there are sound and film studios, flexible seminar rooms, lounge areas, and a multifunctional event space. The campus director in Nuremberg is Florian Schwärzler (pictured).



## Preserving Germany as a Location

The VTFF issued a dramatic appeal to politics to stop the decline of service providers and to introduce a tax-based incentive model.

Exactly 75 years after its founding on October 14, 1949, the Verband Technischer Betriebe Film und Fernsehen (VTFF) held its annual general meeting in Wuppertal. Following the meeting, the historic association of technical-creative service providers celebrated its anniversary at the trendy Open Ground club. Among the most important decisions was the adoption of a modernized constitution for the association.

Additionally, the VTFF issued an appeal to the federal and state governments. They are urged to adopt an effective incentive model (Tax Incentive) as part of the overall reform of film funding this year to bring the German production location back onto the international map. Only this way can the competitiveness of film and series productions be restored.

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# Launch of the Wien Holding Arena

The decision has been made at Wien Holding: The contract goes to CTS Eventim, and Vienna will get a new top-tier multifunctional arena.



Vienna will have one of the best multifunctional arenas in Europe for large concerts, shows, entertainment, sporting events, as well as for trade fairs and e-sports. The new high-level arena will be able to accommodate

up to 20,000 visitors, designed, built, and operated sustainably to the highest standards of event technology and safety.



The path to the new high-level arena in Neu Marx will be undertaken by Wien Holding and the City of Vienna with CTS Eventim as a strategic partner for planning, construction, operation, and financing. The City of Vienna will contribute a maximum of approximately 153 million euros to the cost of building the arena. The arena will be built on the Neu Marx site in the 3rd district. The goal is to complete the new Wien Holding Arena by 2030. Once fully operational, up to 1.2 million visitors are expected for up to 145 events per year.

CTS Eventim will plan, build, finance, and operate the arena, but the land will remain the property of Wien Holding. The Wien Holding Arena will be designed, built, and operated as a multifunctional high-level arena for up to 20,000 visitors. The production conditions and event logistics are intended to set a new benchmark. The common goal is to develop the arena into one of the „must-play arenas“ in Europe.



## The goal: Future-proof and strong

At the end of November, experts, entrepreneurs, and decision-makers met at the Drive Volkswagen Group Forum in Berlin for the fourth Federal Conference on the Event Industry.

The central message: Through decisive action and targeted political support, the industry can solidify and expand its relevance as the sixth-largest economic sector in Germany.

At the end of the day, the participants collectively adopted the demands for the next 12 months to make the event industry more future-proof and resilient.

In a memorandum of demands, the most urgent issues for the industry were outlined for policymakers in four key areas:

- Strengthening the future-proofing and resilience of the German event industry
- Future-proof and competitive: Framework conditions for growth in a stagnating economy
- Deregulation and flexibilization: Political measures demanded
- Sustainability as a competitive advantage: Driving transformation forward

Additionally, the new council was elected at the conference, consisting of (pictured from left to right): Justus Benedikt Brand, Alexander Ostermaier, Jens Langner, Marcel Fery, Ellen Kamrad, Björn Kempe, Mike P. Heisel, Christian Eichenberger.



## Political talks on the tour bus

With a special action, representatives of the event industry drew attention to long-existing existential challenges and invited legislators to discuss.

In front of the Reichstag in Berlin, a tour bus was parked for a day. However, this time it was not rockstars taking a break between concerts but the Federal Conference on the Event Industry (hosted by the Forward/FWD association), which invited members of parliament to learn about the challenges of the sixth-largest economic sector.

The nightliner was provided by Berlin Rock Coaches. Inside, numerous conversations took place with members of the Bundestag and their staff. Five particularly pressing concerns of the event industry were discussed, and practical solutions were presented. Participants included MPs Anja Karliczek (CDU), Heike Brehmer (CDU), Anja Liebert (Grüne), Jana Schimke (CDU), Stefan Schmidt (Green), Dr. Petra Sitte (Linke), and Kerstin Vieregge (CDU).

FWD representatives Christian Eichenberger, Marcel Fery, Tobias Naujoks, and Alexander Ostermaier stressed the burdens the industry is enduring. The MPs learned, for instance, that some legislation is disconnected from reality. Instead of a daily maximum working time, as has been the case so far, a weekly or monthly working time regulation should be possible. After all, events cannot be conducted with a „nine to five“ schedule.

*Pictured (from left to right): Christian Eichenberger, MP Stefan Schmidt, MP Anja Liebert, Marcel Fery, Alexander Ostermaier.*



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# Signs of a new beginning

At the general meeting of the BDKV on November 12 in Berlin, a record number of participants gathered, and an initial look was taken at the first figures from the „Music Industry in Germany 2024“ study (Oxford Economics).



Board with manager director and legal advisor (l-r): Daniel Domdey, Christian Gerlach, Verena Krämer, Sonia Simmenauer, Johannes Everke, Götz Schneider-Rothhaar, Michaela Russ, Dr. Johannes Ulbricht, Christian Doll and Stephan Thanscheidt.

Here, too, record figures are emerging: The live sector grew by 20 percent in 2023 and continues to represent the largest sub-sector of the music industry with a revenue of 5.6 billion euros. To ensure these successes in the future, the BDKV, as the central solidarity association of the concert and event industry in Germany, acts as the interface between the industry, politics, and the public.

The report for the current year is provided by President Sonia Simmenauer: „When we were asked this year how the industry is doing, our answer was always: very well, but not for everyone. On the one hand, the record-breaking reports of large shows and a 20 percent increase in industry revenue compared to 2019 are shining. Images from a never-before-seen number of festivals and the large stadiums are circulating around the world, showing our passion. Live entertainment is giving people a lot, especially in today’s turbulent times. However, 2024 is also a year where exploding costs and slow ticket sales are increasingly putting many smaller and medium-sized events in a difficult financial situation. The entire music industry needs the daring of event organizers now more than ever, to present new topics and develop artists. More than ever, the upcoming stars are emerging on real stages. Our goal is for concert life, from small to large, to be sustainable. We call this ‘Circle of Live’ when emerging acts in clubs eventually become headliners. And this is what secures both our wide concert culture and our economic success.“

To address the industry’s complex situation productively and proactively, four aspects specifically shaped this year’s general meeting: Networking, knowledge sharing, advocacy, and the spirit of solidarity within the association. As in 2023, the internal association part was combined with a conference in the afternoon. In this conference, significant voices from the industry, politics, culture, and society came together in various formats to discuss the most important industry topics.

Looking at the election campaigns, party programs, and coalition negotiations, Johannes Everke, Managing Director of the BDKV, says: „The success figures from the music industry study clearly reflect that, especially in today’s times, people are looking for communal experiences, real encounters, and identification. This gives us economic significance.“ The final report of the „Music Industry in Germany 2024“ study will be published soon.

Picture on the right: Panel discussion (l-r): Pamela Schobeß (Club Gretchen und Live Musik Kommission e.V.), Johannes Everke, Sonia Simmenauer, Dr. Andreas Görgen (Amtschef BKM), Christopher Annen (AnnenMayKantereit), Klaus Mertes SJ (Jesuit, Author and Educator). Pictured left: Keynote speaker und moderator Vivian Perkovic, Johannes Everke.



# Events as drivers of tourism effects

A comprehensive study using the example of the Quarterback Immobilien Arena (QIA) in Leipzig provides a detailed overview of the impacts of events on the city of Leipzig and the surrounding region.



The study analyzed concerts, shows, and sports events, with concerts accounting for the largest share of visitors and economic effects. The visitors are characterized by a wide age range and varying income levels.

The analysis shows that cultural events, particularly concerts, attract a significant proportion of out-of-town visitors (from outside the city and the Leipzig district), thereby contributing to the increased visibility of Leipzig as well as a rise in guest numbers.

Specifically, about a quarter to a third of the out-of-town visitors plan to take advantage of additional leisure and cultural offerings in Leipzig. In numbers, this translates to around 60,000 to 135,000 additional or potential tourists generated by events at the QIA in 2023. This illustrates the tourist potential of the venue not only as an event location but also as an

attraction for tourists and visitors from other regions.

The direct economic effects of the events are quantified in the study. The conservatively estimated results - taking into account only direct effects - clearly show the financial importance of the events at the QIA for Leipzig. During the survey period from April to June 2023, concerts generated a direct value creation of approximately 5 million euros and an income of about 4 million euros. For the entire event year 2023, the direct value creation effects are estimated at around 21 million euros, with concerts contributing the largest share of 12 million euros.

[www.forschung.hs-mihweida.de/veroe\\_entlichungen/sciengficreports/sciengfic-reports-2024/](http://www.forschung.hs-mihweida.de/veroe_entlichungen/sciengficreports/sciengfic-reports-2024/)

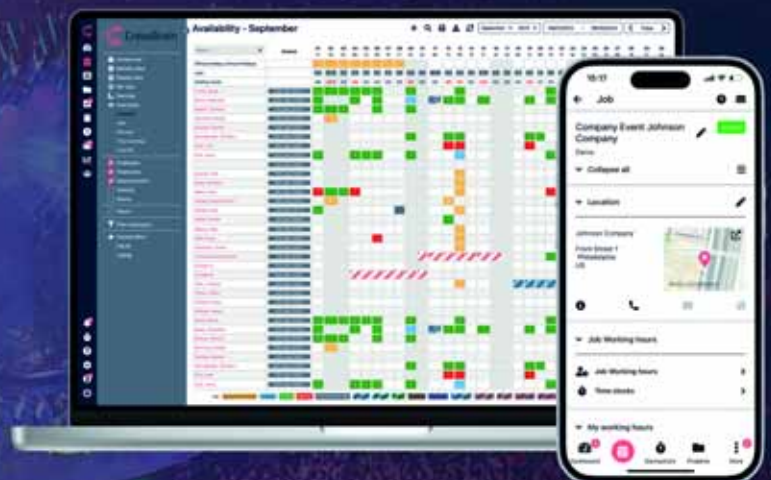


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## 1 trade fair visit avoids 5 business trips

A survey of 3,000 people was conducted on the added value of trade fairs. The study highlights the significance of the trade fair industry, showing that a majority of business contacts cannot be made digitally with the same level of quality.



Trade fairs contribute to climate protection and sustainability by efficiently consolidating personal contacts and thus avoiding additional travel. This is a key finding from the newly published study „The Added Value of Trade Fair Visits: How Individual Trips Are Avoided“. The study was conducted in the first half of 2024 by the Institute for Sustainable Tourism at the Hochschule Harz, commissioned by the German Trade Fair Industry Association (AUMA).

Specifically, the first and most comprehensive survey of this kind with nearly 3,000 participants demonstrates the high efficiency of trade fair visits. The study shows that for each visitor per day, on average more than five separate trips are avoided - ranging from at least three to nearly 14 avoided trips depending on the trade fair. On average, respondents had more than 13 business contacts per day, with over a third of these contacts leading to additional travel if the trade fair visit had not occurred.

The study details: International visitors at trade fairs in Germany avoid an average of eight extra trips, while visitors from Germany save nearly four additional trips through the right trade fair visit.

Particularly, air travelers plan their trade fair visits highly efficiently: they have more business contacts (almost 18) and avoid more trips (nearly eight) than car users (over 12 contacts, nearly five trips avoided). Guests from South and Central America, as well as the Near and Middle East, avoid the most trips on average

(almost 12/more than 11), which highlights the global reach and efficiency of trade fairs. Regarding the types of discussions, informal meetings for business initiation (about 42%) and networking (40%) rank the highest, followed by product discussions (around 36%) and contract negotiations (around 20%). The study also shows that international visitors have a higher number of purchasing discussions compared to domestic visitors (nearly 32% versus over 12%), underscoring the importance of trade fairs for international business deals.

Interestingly, more than 60% of business contacts could not have occurred digitally with the same level of quality, according to the respondents. This emphasizes the high value of face-to-face encounters at trade fairs and the importance of direct exchanges in the business world.

The study also explores the scheduling and travel habits of trade fair visitors: 45% of respondents plan additional appointments in connection with their trade fair visit, further enhancing the efficiency of the trip. More than a quarter of visitors (28%) combine the trade fair visit with additional business appointments, while another 17% combine their business trip with a private stay.

The majority of respondents (56%) report that they personally pay attention to ecological factors when planning their trade fair travel. On the company level, even 60% take ecological aspects into consideration.



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# ROXX®

# Festivalgoers don't care about sustainability

Guests largely do not care about the topic of sustainability at festivals. This is shown by a large-scale study conducted by IST-Hochschule for Management.



The study dramatically reveals that the majority of festival-goers pay little attention to sustainability. This contradicts global environmental movements and the growing awareness of climate protection. The surprising finding of the study raises questions and presents new challenges for the event industry. How can festivals still be designed sustainably? Innovative strategies such as nudging might be the answer.

The study at IST-Hochschule for Management surveyed over 3,500 festival fans. Of these, only 9.6% stated that sustainability at festivals is important to them. This indifference spans all age groups, genders, and social classes. „The study has far-reaching consequences for the festival industry“, says Prof. Dr. Matthias Johannes Bauer, referring to the responsibility of organizers, sponsors, and politics. Pro-

Festival director **Tom Naber** (left) and **Prof. Dr. Matthias Johannes Bauer** research and teach festival management at IST-Hochschule.

fessor Bauer, along with his scientific assistant Tom Naber and graduate Lea Michel, conducted the survey and analysis. Bauer and Naber teach Festival Management in the Master's program in Communication Management at IST-Hochschule.

„Festivals serve as an escape from everyday life, the so-called escapism. And as separate spaces where everyday norms and responsibilities are suspended, they often lead to sustainability topics being perceived as disruptive“, explains Bauer. „Or less academically speaking: people just want to party and leave everyday worries, like climate change, behind for a while.“

However, this has far-reaching consequences: „Because if sustainability is not important to the fans, organizers are even more in demand“, says Bauer. Many organizers already see it as their responsibility and are taking action.

The study thus emphasizes the need to develop new strategies to promote sustainability at festivals.



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# New German headquarters

Samsung has moved into its new office building in Eschborn. It is a flexible work environment designed based on the Plug'n'Play principle for around 1,000 employees - in a building certified as a Green Building for both environmental sustainability and employee well-being.



Samsung Electronics GmbH has relocated to its new German headquarters in Eschborn. With the Samsung Space, approximately 1,000 employees now have a forward-thinking and clearly sustainable work environment spanning around 17,000 sqm, aimed at promoting flexible and hybrid working. From now on, work will take place across 15 office floors in the Samsung Space at Frankfurter Straße 2 in Eschborn. The new location provides a work environment with modern room and design concepts tailored to the demands of a fast-paced work world and developed in collaboration with the Fraunhofer Institute and the Business Innovation Consulting Group (bicg).

The spatial concept is based on an analysis by the Fraunhofer Institute, which found that 42% of Samsung's activities require high concentration, 31% are communicative in nature, and 27% are based on collaboration. The design of the work environment and space allocation reflects these different needs.

Quiet zones for focused work, co-working and social areas, as well as flexible and individually customizable meeting rooms, are designed to allow employees to adapt their work environment to their personal needs. Teams can even adjust meeting spaces with modular furniture and a few simple steps to suit their purpose. All areas are designed to foster creativity and well-being among the teams. A large proportion of green spaces outside, as well as a specially developed plant concept for the interior, contribute to the pleasant atmosphere in the Samsung Space. The plants in the office rooms are selected to improve the indoor climate. Sensors continuously measure air quality, which is displayed live in the room via light signals.

A modern technical infrastructure enables a Plug'n'Play working environment: Employees can freely move between different work environ-

ments and departments with their technical equipment and connect their devices to the network in their chosen workspace. High-quality and functional conference technology supports efficient communication in hybrid meeting formats. Nearly everything is digitalized or automated: from workspace and room bookings to food orders and payment transactions in the Samsung Space Restaurant and Work Café. In the entrance area, visitors are already greeted by a large LED screen. Starting in 2025, a Space Lounge on the 15th floor will offer a spectacular view of the Frankfurt skyline and the Taunus region, providing the perfect setting for relaxed get-togethers or after-work exchanges. Additionally, exclusive access will be available to the Seveneleven fitness studio in the neighboring building - perfect for a break and to refresh your mind for new ideas.

Samsung placed great importance on sustainable construction when developing the new building. By choosing specific building materials, 1,700 tons of concrete and 150 tons of CO<sub>2</sub> emissions were saved during construction. This was achieved through a modern technique in the ceiling construction using hollow bodies made from recycled materials.

An intelligent lighting control system is in place to optimize overall energy consumption. Furthermore, a 1,100 sqm solar system on the roof of the parking garage generates electricity for the Samsung Space. The parking garage also has 60 charging stations for electric vehicles, which makes up 10% of all parking spaces. For the freshly prepared, nutritious meals at the Samsung Space Restaurant, regional products are predominantly purchased. A digital pre-order system for lunch via smartphone app aims to reduce food waste.

The building has been awarded a „Leadership in Energy and Environmental Design (LEED)“ Platinum certification, allowing it to be recognized as a Green Building.

# New branch with Audio Arena

dB Technologies has moved into its new branch at Ettore-Bugatti-Straße 5 in Cologne, offering a completely new dimension for product presentation and customer experience with the specially designed Audio Arena.

This unique environment was created to give customers and partners the opportunity to experience dB Technologies' solutions firsthand. The focus is on the complete Vio family, as well as the latest models from the Ingenia, Opera and Sub series. The Audio Arena has been meticulously designed with a custom acoustic setup that meets the highest sound quality standards, providing an ideal stage for the presentation of the systems.

In addition to the impressive product experience, the new branch will also become a hub for knowledge transfer and further education: Starting in 2025, the dB Technologies Audio Academy will launch with an extensive program of seminars and workshops. This global training program will be continuously expanded and offers participants the opportunity to take part in certified courses that will be regularly updated on the Academy website. Another highlight will be Masterclasses with external speakers, providing additional insights and inspiration.

Giovanni Barbieri, General Manager of AEB, the parent company of dB Technologies, explains: „The opening of our new branch in Germany is a significant milestone in one of our most important markets. With this step, we are creating a place where technology and expertise become tangible for our customers. This investment strengthens our proximity to our partners and allows us to support their long-term success.“ Thomas Kuck, Managing Director of dB Technologies Deutschland GmbH, adds: „We have invested a lot of time and energy into this project, and the results speak for themselves. The initial feedback from our customers has



been overwhelmingly positive - especially appreciating the opportunity to experience dB Technologies as an independent company at our new location. Starting in 2025, our entire team will be present at this location.“

# Model 2400

# NEU





## An eerie village

Director and set designer Philipp Stölzl returned to Bregenz after „Rigoletto“ (2019/21) to direct Carl Maria von Weber’s romantic opera „Der Freischütz“, transforming the Seebühne into a ghostly village, half-sunken in a wintry swamp landscape.











Over several weeks, the Bregenz Seebühne gradually morphed into the eerie winter landscape that director and set designer Philipp Stölzl envisioned for Carl Maria von Weber's „Der Freischütz“.

„My starting point for any stage design is always the question of how best to ignite the story. ‘Der Freischütz’ is set in a small village surrounded by a dark forest where spirits haunt at midnight. My instinct was to bring this almost cinematic setup to life with a kind of ‘poetic realism’, rather than abstracting it, as I did with Rigoletto“, says Stölzl.

Since December 2023, the small village on the lakeshore had begun to take shape. Stölzl succeeded in creating a haunting atmosphere of the village half-submerged in the water: „In essence, ‘Der Freischütz’ is a dark

Faust story: Max sells his soul for earthly happiness and pays a bitter price. In the drafty huts, essential conflicts are fought, and hard battles are waged.“

From construction to installation and final technical adjustments, the process took about ten months, with the planning spanning around three years. In total, 25 festival technicians (including crane operators) were involved in building the set. The Seebühne is constructed on 158 piles driven up to six meters deep into the lakebed. Made of spruce wood, the piles weigh about one ton each.

Using steel, Styrofoam, and hundreds of cubic meters of wood, technicians from the festival, together with employees from over 30 companies,







built the set during the winter months. The set includes snow-covered hills, decaying wooden houses, and bare trees.

Right at the water's edge, a 1400-square-meter artificial lagoon was created, turning the Seebühne into a wintry swamp landscape.

In „Der Freischütz“, the performance takes place not only above but also in the water. The large water basin is 25 centimeters deep at most points, but there are also passageways and deeper areas where performers can disappear and reappear. „Everything is slip-resistant, so nothing can go wrong“, says Technical Director Wolfgang Urstadt. Twice a day, the 500,000 liters of lake water in the basin are circulated by pumps, with ceramic filters ensuring cleanliness.

The Freischütz village consists of eight crooked houses. The smallest is no bigger than a doghouse, while the village tavern has a footprint of just 16 square meters, roughly the size of a small living room. All the houses, including the approximately 12-meter-high church tower, are made of a wood-steel construction.

The team used Styrofoam, filler material, and paint to give the houses a stone-and-wood appearance, then applied a carefully crafted patina. Thirty lifelike, leafless trees made from steel frames, covered with rabbit wire, filler material, mortar, and paint to resemble natural trees, complement the scene. Above the snow-covered hills, a six-meter-diameter moon, made from a wooden structure, is covered with 3D-milled Styrofoam panels and facade plaster.







The hill is made from about 40 wooden elements attached to a steel frame. The 680-square-meter surface was designed by the plastering department using Styrofoam, facade plaster, and paint. Inside the hill, there's a sunken grave and six speakers built in.

The water basin is made of a wooden structure and covers an area of around 1400 square meters. A film liner ensures the basin is watertight, and a carpet on top of the film provides a slip-resistant surface for performers.

During the festival season, the basin is flooded, adding over 500 tons of weight to the structure.

A giant snake is hydraulically lifted about 3 meters, and its mouth can mechanically open to release a burst of fire. The horse and carriage are made from steel, wood, and other materials, sunken in a depression in the water basin, and can be hydraulically lifted from

the water. The carriage wheels are powered by pneumatic motors. Hidden mechanics allow the rider's legs to move as the horse gallops. Lighting, video, and sound technology were the final additions.

## Lighting Technology

Once the directorial team presented the stage design and concept, lighting designers Philipp Stölzl and Florian Schmitt developed their own concept. The planning for the technical implementation then began, followed by budgeting, equipment purchases, and installation.

86 moving lights are placed in hard-to-reach positions. Another 48 waterproof static LED spotlights are built throughout the set, behind and inside the scenery elements. These are positioned in two lighting towers







(left and right of the tribune), in the front edge of the water basin, within the stage set itself, and in the observation tower (at the top of the building), as well as the masts next to the stage.

Thirty underwater spotlights color the water in the basin in different hues. The LED technology is mainly used to illuminate decorations and as effect and area lighting. Since 2021, almost exclusively LED spotlights are used, reducing power consumption significantly from 1 megawatt to just 150,000 watts.

The lighting designers chose 33 Ayrton Domino LT, 10 Ayrton Domino Wash, 12 JB Lighting Sparx 30, 4 Martin Mac Ultra Wash, 5 Martin Mac Aura XIP, 6 SGM G-4 Wash, 16 SGM P-5, 16 Chauvet Colorado Bar, 16 Astera AX2 Bar, 16 Astera Titan Tube, and 30 Acclaim Aqua Drum lights. Including hall and orientation lights, approximately 500 devices are installed. All lighting is controlled via two GrandMA2 full-size controllers.

## Projection and video

Two high-performance Panasonic projectors are used, with the smaller one serving as a backup. The main projector, a Panasonic PT-RQ50k, has an output of 50,000 ANSI lumens, while the backup projector delivers 35,000 ANSI lumens.

Although the projectors use laser technology, they still produce considerable heat. Therefore, a special air conditioning system has been installed in the projection room (the top floor of the building) to maintain a constant room temperature.

For orchestra transmission and conductor monitoring, the conductor is usually directly visible in opera houses. In Bregenz, however, since 2005, the orchestra has been separated from the stage for acoustic, cli-











mate, and construction reasons. The conductor and orchestra are recorded by video cameras and displayed on multiple video monitors distributed across the Seebühne and up to 30 screens in the tribune and house.

### Sound technology

For the sound system, a Lawo MC2 96 with UHD Core serves as mixing console A, and a Digico Quantum 338 T as mixing console B. A Live Professor 2 plugin server is used.

The directional mixer is a Fraunhofer IDTM Spatial Sound Stage. Signal conversion and distribution are handled by four Direct Out Prodigy MP, three Prodigy MC, and two Lawo Nova 73HD devices. The intercom system used in Bregenz is Artist and Bolero from Riedel.

A total of 56 microphones are used: wireless microphones are Shure Axient Digital 32 Ch, including waterproof transmitters from Q5X.

Microphones for the orchestra mix come from Neumann, dpa, Schöps, Austrian Audio, Sennheiser, and Josephson.











Amplifiers are from Crown and KV2, with speakers from KV2, Adamson, JBL, and Kling + Freitag. Sound sources come from QLAB and Ableton Live. „Especially on stage, singers are often directly in front of loudspeakers. For this purpose, our Spectra system is ideal because it transmits the signal to the audience with extremely low distortion, excellent directivity, and high SPL without generating feedback“, explains Marco Kuhnmünch from audio specialist Kling + Freitag.

After the success of Rigoletto, the Freischütz performance on the lake in 2024 is the second production directed by Stölzl at Lake Constance. He is responsible for both the direction and set and lighting design.

A total of almost 200,000 spectators attended the performance across 28 evenings. On July 17, 2025, the revival premiere will take place on the Seebühne, and about a quarter of the 175,000 tickets for 26 performances have already been booked.







**Direction, Stage Design:** Philipp Stölzl  
**Lighting Design:** Philipp Stölzl, Florian Schmitt  
**Technical Direction:** Wolfgang Urstadt  
**Sound Technology:** Clemens Wannemacher, Alwin Bösch, Jakob Amann, Anton Kempe, Michael Lapitz, Rebekka Schrimpf  
**Sound Effects:** Jan Petzold  
**Stage Technology:** Alfred Boss, Martin Fend  
**Lighting Technology:** Markus Holdermann, Matthias Zuggal, Cristian Carrillo, Philipp Fischer, Simon Flatz, Maximilian Neuraüter, Fiona Splinter, Stefan Steurer, Wolfgang Streiter, Nino Walser  
**Stage Technology:** Manfred Achberger, Frank Diebels, Sami Kyllönen  
**Event Technology:** Achim Schneider, Marco Bannmann, Paulo Lapkalo, Mihaly Gulyas, Patrick Vogelauer, Mario Zdrilic  
**Photos:** Ralph Larmann

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





# MULTISENSES



Multisenses was founded in 2016 by Christoph Grauting in Lage, Westphalia, as Showmotion Design UG and began in event technology, multimedia installation, and event design. The young company initially focused on the design and installation of water shows.





Parktheater Iserlohn



Kurhaus Bad Hamm



What started on a small scale quickly became a success. The team grew, along with its competencies. Based on solid expertise in the fields of electrical engineering, lighting design, and interior architecture, the company was rebranded as Multisenses GmbH. Since then, Christoph Grauting and his team have been known for utilizing their extensive knowledge to benefit their clients.

Today, Multisenses consists of 35 employees, including six apprentices in the fields of event technology specialists, electrical engineers, and office communication clerks. „As a master craftsman in electrical engineering, the expansion from event technology to system integration was a natural step, and we are proud to have successfully established ourselves in this field“, says managing director Christoph Grauting.

The core competencies of the young company lie in technical know-how in lighting, media, control, and electrical engineering. This is complemented by the lighting planning and design expertise of the interior architecture team. From control cabinets to complete room concepts, LED retrofitting, professional lighting planning, the implementation of innovative control technology, and the planning and realization of entire building automation solutions, the company's reference list is impressive.

„We are, of course, happy to carry out so many great projects, but retrofitting historical lights is my personal passion. I love the challenge of

modernizing traditional technology with innovative solutions for the future while preserving existing positions and, of course, the atmosphere of a space. Especially in combination with the latest control technology, which enables flicker-free dimming even in the lower 10 percent, LED technology offers so much more than just energy-saving lights, and the results always excite me“, says Grauting.

As a member of the associations DTHG, ISDV, and Degefest, Multisenses is represented at various trade fairs and events, where the team presents its references. The Multisenses fair crew is always excited to discuss event technology and system integration and go on the hunt for innovative applications. Back in their hometown of Lage, the tech enthusiasts put their discoveries to the test to offer their clients the best solutions for their individual needs.

Multisenses' standards for building and lighting control technology range from interface-flexible control to individually adjustable dimming curves, all the way to manufacturing in Europe/Germany to respond quickly and appropriately to customer requests. „That's why we also became distributors for ISY GLT products. Although we generally work independently of product brands, if we can recommend something, we stand behind it and offer it with pleasure.“

And precisely because the transition to a successful system integrator has been successful, the passion for event technology has always been maintained. With the planning of extensive compositions of water, light, laser, fire, and multimedia technology, the Multisenses designers achieve successes worldwide. Whether as a mobile show or permanently installed, as is the case in large mall or theme park projects, the company impresses with its technical competence and well-thought-out design ideas.







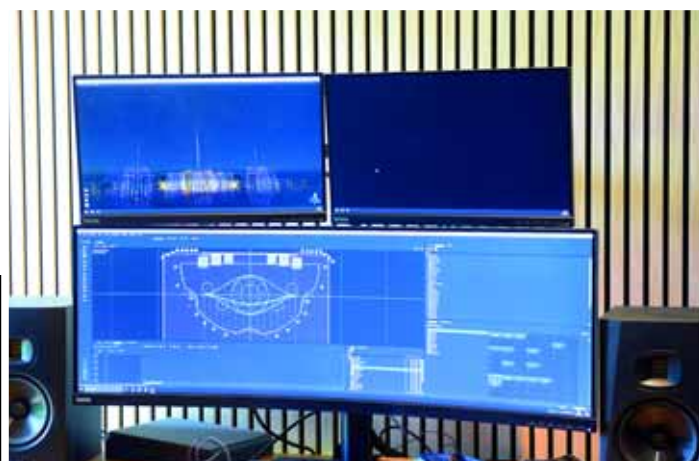
What initially only exists in the minds of the show designers takes shape through Depence, a multimedia software and hardware system by Synchronorm. Christoph Grauting reveals that the now existing option of embedding designs into the environment using a VR headset and providing a realistic idea of the show experience is a real benefit for both designers and clients. In this way, Multisenses keeps up with the times, tests technical innovations in both hardware and software, and uses both proven and innovative approaches to sustainably excite its clients.

The economic success and the continuously increasing number of employees and projects have consequences: this summer, Multisenses moved to new premises. The new location on Daimlerstrasse in Lage provi-

des enough space for the different departments, storage areas, and opportunities to test and further develop new ideas.

But Christoph Grauting already has plans for the upcoming year: the business sector of system integration will be expanded. Event services, show designs, and water shows will then operate under the reactivated Showmotion Design brand. With this thematic separation, Multisenses aims to sharpen its profile.

Regarding the development of his company, Christoph Grauting says: „I am aware that sometimes my ideas need to be held back. I am happy to have a team that speaks their mind and works so wonderfully together. That makes me incredibly proud of us and fills me with curiosity for the future.“







### André Ballweg

**Crystal Sound** announces the reinforcement of its sales team with **André Ballweg**, who has already been successfully working with the company for seven years. Before his current return to Crystal Sound, Ballweg spent over a decade in sales at CGS Dry Hire. His expertise will play a key role in driving forward the innovative solutions of Crystal Sound.



### Maximilian Breder

**Broadcast Solutions** has appointed **Maximilian Breder** as Chief Operation Officer (COO), responsible for the operational management of the company's headquarters. After gaining practical experience at SWR in Mainz and at Broadcast Solutions, he pursued part-time studies in Business Administration and Management. In 2023, he became an advisor to the management. As COO, he now takes full responsibility for the operational sector.



### Claudia Daufenbach

Since October 1, **Claudia Daufenbach** has been the General Manager of the **PSD Bank Dome** in Düsseldorf. In this role, she is responsible for the leadership and will drive the further development and direction of the Düsseldorf venue. With her experience in event management, Claudia Daufenbach brings excellent qualifications and her extensive network in the industry to her new role.



### Karel Dörner

**CTS Eventim**, Europe's leading ticketing and live entertainment provider and the world's number two, has appointed the experienced top manager, former head of McKinsey Digital Labs in Western Europe, and co-founder of eBay Europe, **Karel Dörner**, as Chief Technology Officer (CTO) on the board, effective January 1, 2025. He will lead the further digitalization of the company's business processes.



### Jan Eveleens

Starting January 1, 2025, **Jan Eveleens** will take on the role of CEO of the Product Division at **Riedel**, succeeding **Rik Hoerée**, who has decided to step down after more than a decade of service at Riedel. Since joining in 2018 as Director of Business Development, Eveleens has already been a key figure in the company.



### Dietmar Harting

A reason to celebrate at the **Harting Technology Group**: While CEO **Philip Harting** turned 50 just a few days ago, Senior CEO **Dietmar Harting** is celebrating his 85th birthday. Dietmar Harting, affectionately known as „Mr. Standardization“ in the industry, took the helm of the company in 1967 and led it with foresight and innovative spirit into new dimensions.

### Torsten Hauer

**Robe** has strengthened its TV, Broadcast, and Film Lighting Solutions department with **Torsten Hauer**, who has planned, installed, and supported numerous broadcast studio projects worldwide through his work at Arri over many years, including for Al Jazeera, Alaraby TV, Oman TV, ARD, MDR, RBB, and WDR. Hauer now takes on the role of Lighting Solutions Specialist for TV/Film/Installations.



### Milan Ostendorf

The **Hof-Team** is pleased to welcome a new colleague in sales and has gained an experienced industry expert in **Milan Ostendorf**. Milan Ostendorf is a trained event technician with ten years of industry experience. He has worked in both technical sales and as a project manager. Ostendorf will now work as an internal technical sales representative.



### Nick Pemberton

**Lawo** has appointed **Nick Pemberton** as Global Partner Business Development Director. In this newly created role, he is responsible for the strategic and commercial development of Lawo's global partner network. Prior to his move, he held various international leadership positions at Sennheiser, Harman, and most recently Avid, where he led the EMEA Channel Partner Management Team.



### Justus Rogmann

**Riedel** is pleased to introduce Secure Reliable Transport (SRT) expert **Justus Rogmann** as a new member of its team. Since January 2024, Rogmann has been part of the Media Division. He brings over 20 years of experience in live-streaming to his new position and is one of the key developers of the SRT protocol. He worked for over twelve years at Haivision as a developer of the SRT protocol.



### Sebastian Strohm

**Beyerdynamic** announces the appointment of **Sebastian Strohm** as Co-Managing Director. Strohm brings extensive expertise in corporate management. Since October 2024, he has taken responsibility for the areas of finance, human resources, production, logistics, purchasing, legal, and IT. Andreas Rapp continues to be responsible for sales, marketing, product management, and research & development.



### Karlotta Thelen

The Ludwigsburg-based agency **What When Why** is expanding to the west. The management of the newly opened office in Cologne, which opened in August, will be led by **Karlotta Thelen**, who has been working for WWW as a Consultant in Communication & Strategy since August 2022. The studied media and business psychologist, along with the entire team, will also be reinforced by a new senior project manager.





## Pik AG is Growth Champion 2025



PIK AG Information and Conference Technology has been recognized as a Growth Champion by Focus-Business again this year. The company achieved a growth rate of 37 percent, ranking 7th in the sector of electronics, electrical, and medical technology.

„A big thank you to all our employees, partners, and customers who accompany and support us on this exciting journey. Looking ahead, we set even higher goals: we plan to further optimize our processes to strengthen our position and continue to offer the highest quality and tailored solutions to our customers and partners. Here's to the future!“, says Pik CEO Christoph Wegner.

## Canon Wins Sustainability Award



Europe's highest award for ecological and social engagement has been awarded to Canon Germany in the Information Technology category. Canon was able to convince the six-member jury with its numerous sustainability and corporate social responsibility initiatives and secured the top spot in the prestigious competition, which had 25 applicants in the Information Technology category.

The German Sustainability Award was presented for the 17th time and is aligned with the goals of the 2030 Agenda, focusing on key transformation areas such as climate, biodiversity, resources, supply chains, and society.

## Triumph at the Galaxy Awards 24



Fischer Appelt was awarded 21 accolades for several projects at the Galaxy Awards 2024 in the USA, surpassing last year's results.

This makes the agency the most successful German participant in the competition this year. Projects for clients such as Claas, Telekom, Visit Qatar/Grand Automotive Week, and the Federal Presidential Office were recognized in a total of five different categories.

This success reaffirms Fischer Appelt Live Marketing's strategic and creative excellence and marks an important step towards achieving a global leadership position in live marketing.

**Ralph Larmann**  
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## Panic Times

Udo Lindenberg's multimedia experience world „Panik City“ has been awarded the Tripadvisor Travelers' Choice Award as a favorite of travelers.



**Best of the Best**

Panik City, the multimedia experience world centered around Udo Lindenberg, was honored with the Travelers' Choice Award 2024 by Tripadvisor. The award recognizes companies that consistently receive outstanding reviews and therefore rank among the top 10 percent of all entries worldwide on Tripadvisor.

„Folks, this is absolutely amazing! A huge thank you to the entire Panik City crew - without your personal enthusiasm and incredible dedication, this would not have been possible. You are the true rock stars! Since 2018, our utopian rocket station has been taking off, and even through lockdowns and all the politically challenging times, you've spread the Panic Virus of good vibes and optimism. Simply galactic! Keep it up, because there's more beyond the horizon!“, said Udo Lindenberg, directly from the Hotel Atlantic.

As the world's largest travel platform, Tripadvisor enjoys high esteem among travelers and restaurant visitors. The award is based on authentic feedback from the community, which was left on Tripadvisor over a twelve-month period.

„Congratulations to Panik City for being recognized at the 2024 Tripadvisor Travelers' Choice Awards“, says John Boris, Chief Growth Officer at Tripadvisor. „Travelers' Choice honors businesses that consistently deliver outstanding hospitality. This means they have made such a lasting impression on their visitors that many of them took the time to share their positive experiences online. People trust the Travelers' Choice badge from Tripadvisor to navigate the multitude of attractions, restaurants, and activities worldwide. We hope that this recognition will continue to bring business to Panik City in 2024 and beyond.“

### Panik City

Panik City, covering an area of about 700 square meters, is located in the Klubhaus St. Pauli on Hamburg's Reeperbahn. The innovative technology, art, and culture project traces the musical, artistic, and socio-political work of Udo Lindenberg and brings it to life through technological innovations. The Reeperbahn, with its side streets, is Germany's hotspot for parties, celebrations, and all kinds of entertainment, attracting over 30 million visitors annually.

[www.panikcity.de](http://www.panikcity.de)



## Deutscher Zukunftspreis (German Future Prize) for „Digital Light“

The research project „Digital Light - Intelligent LED Technology for the World of Tomorrow“ by Dr. rer. nat. Norwin von Malm (Osram), Stefan Grötsch (Osram), and Dr.-Ing. Hermann Oppermann (Fraunhofer IZM, Berlin) has won the President's Prize for Technology and Innovation.

The President of Germany, Frank-Walter Steinmeier, honored these scientists and engineers for their excellent foundational and advanced research that provides solutions to pressing societal challenges. Their innovations hold the potential for economic success and the exploration of new growth areas.

On November 27th, the jury awarded the team led by Dr. rer. nat. Norwin von Malm, Stefan Grötsch, and Dr.-Ing.

Hermann Oppermann for their project „Digital Light - Intelligent LED Technology for the World of Tomorrow“. The team succeeded in developing a technology featuring tiny, individually controllable LED pixels that enable new, resource-saving applications.

One example is a novel car headlight that enhances driving safety by intelligently adapting light distribution to the road surface. It prevents glare for oncoming traffic while





alerting drivers to dangers, enabling safer navigation through hazardous situations, such as construction zones. Further applications include advanced light sensors for augmented reality and human-machine interaction.

## Light: A versatile wonder

Light provides orientation, can save lives, and serves as both information and an essential enabler for our sense of sight. Humanity has long sought to turn night into day for the safety that light provides - a need that remains crucial, especially in road traffic. Recognizing hazards earlier gives drivers more time to react, making headlights a vital safety tool at night. For over a century, automotive headlights have undergone continuous improvement. One might assume that headlights, after such long development, have reached their peak potential. However, those with creativity can reimagine headlights even after more than 100 years.

Dr. Norwin von Malm, Stefan Grötsch of Osram, and Dr. Hermann Oppermann from Fraunhofer IZM Berlin have demonstrated such creativity by developing an entirely new type of headlight. Dr. von Malm, as Senior Director of New Technologies at Osram, is responsible for bringing new ideas from the scientific domain into the industrial sphere. Stefan Grötsch leads hardware and software development in System Solution Engineering for the Mobility division. Dr. Oppermann works at Fraunhofer IZM in the Wafer-Level System Integration department, specializing in micro-contacting, connection technologies, and fine-pitch component assembly.

Together, they created a headlight light source that is smaller, lighter, more efficient, intelligent, and precise in its light emission. The goal is to illuminate the road as brightly and accurately as possible without dazzling or endangering others. Achieving this requires precise control of light distribution to adapt optimally to different situations - something unachievable with simple low-beam and high-beam combinations.

The new light source features a matrix of 25,600 LEDs arranged in 320 x 80 pixels. Each LED can be controlled

individually via a digital signal. This setup creates a headlight that functions similarly to a video projector. Bright areas are illuminated precisely, while other areas, such as oncoming vehicles, remain in the dark to prevent glare. This approach offers full high-beam illumination without compromising the vision of other road users, enhancing safety.

The key innovation of this system is that it requires minimal space and operates with high efficiency by only activating the LEDs needed for the desired light distribution. Traditional systems with passive light modulation rely on shading, where a primary light source operates at full power, and unwanted light is filtered out - a wasteful and thermally inefficient approach.

Building such an LED matrix poses several challenges. Each large LED must be divided into numerous small pixels, and each pixel must be individually addressable. This requires precise alignment of the LED matrix with a corresponding electronic circuit matrix. Special connection layers and processes were developed to accommodate the different properties of light-emitting and electronic semiconductors.

Another challenge was applying the phosphor coating needed to emit white light. LEDs naturally emit only one color, but headlight light must be white - a combination of multiple colors. A phosphor coating on blue LEDs generates yellow light, which, combined with the blue, creates white light.

However, conventional phosphor coatings scatter light sideways, causing adjacent pixels to light up unintentionally and blurring the headlight image. The solution was a newly developed, thinner phosphor coating that prevents lateral light leakage, resulting in a precisely controlled LED module that enhances road safety.

In addition to providing light, the headlight can project pictograms onto the road, acting like a projector. This capability enables warnings such as snowflake symbols in icy conditions or alerts for wrong-way drivers, adding an extra layer of safety.

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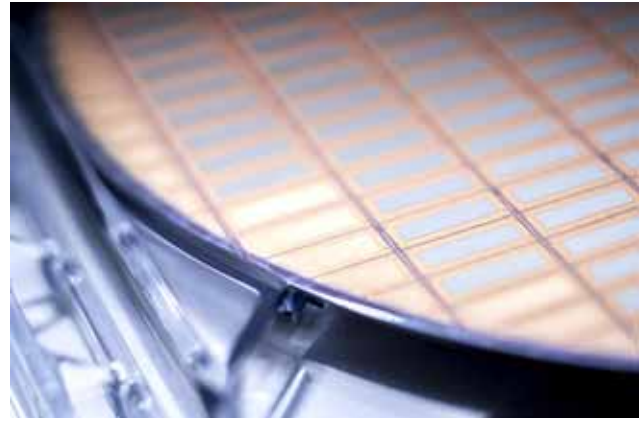
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## Augmented Reality and beyond

The next application area for the LED matrix is augmented reality (AR). AR glasses that overlay digital information onto the real world can use the LED matrix as a virtual monitor. Its strengths are ideal for applications where space and efficiency are crucial, such as lightweight AR glasses that require bright projections for outdoor visibility.

The digital light technology also has potential in data communication within computers. Traditional connections between processors and memory use copper wiring, which has space limitations. The LED matrix can create a fast, parallel data pathway using light beams, enabling a novel computer architecture where memory does not need to be physically near the processor. This innovation could be a key component for running large AI applications.

The innovation „Digital Light - Intelligent LED Technology for the World of Tomorrow“ is a foundational technology with numerous applications and significant economic potential. Osram and companies across the value chain have already created many attractive jobs, contributing to Germany’s status as a leading research and development hub.

## Interview

### What was the starting point of the innovation process?

**Dr. rer. nat. Norwin von Malm:** A few years ago, the automotive industry dreamed of a headlight where the exact distribution of light on the road could be digitally controlled - similar to a video projector. So, not just low beam and high beam, but a system where, depending on the traffic situation, you could determine where light should fall on the road – and where it shouldn’t. For that, you need many very small light sources. In 2008, I first worked on segmented LED chips. These are LEDs made up of several parts lying side by side, which are interconnected in the manufacturing process. Or they can be turned on and off individually.

During a meeting with an automotive client, it became clear to me that the headlight dreamed of by the automotive industry could indeed be built with the help of segmented

LED chips. For this, we would need many small segments on an LED chip, each controlled separately – over 25,000 pieces. But of course, it’s impossible to run a cable to each individual segment or pixel. Even with small wires, it doesn’t work – it’s just too much and too small. Plus, the light would be blocked by the wires. We needed a solution for that.

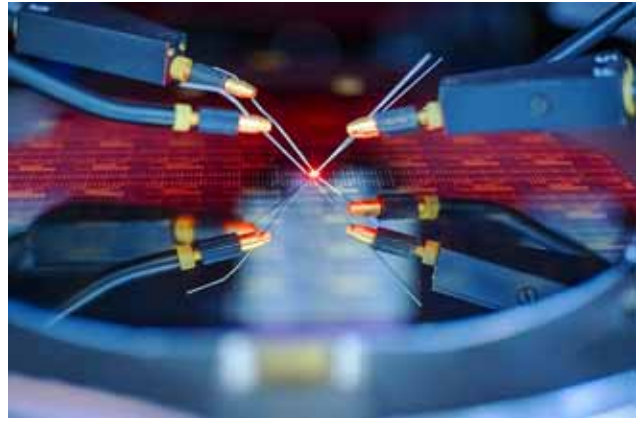
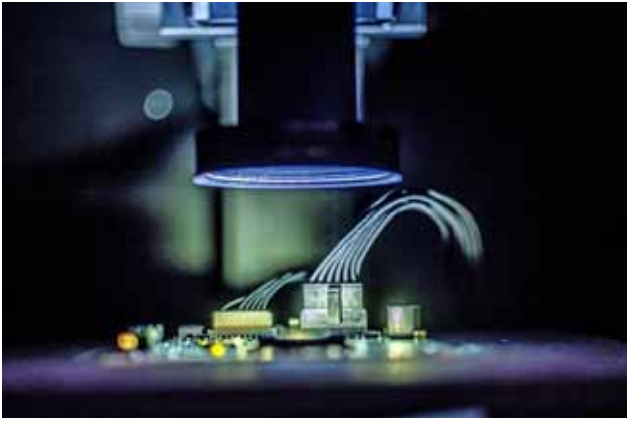
**Stefan Grötsch:** I had been working on video projection. The challenge there was that with our LED, we were only illuminating a passive light modulator, which works like this: You take a light source that is always on at maximum brightness to illuminate the modulator. The modulator then blocks the unwanted light pixel by pixel. This is how the video image is created from bright and dark pixels. So, I first generate all the light and then have to destroy the efficiently generated light. The white pixels stay on, and for the black pixels, the light is filtered out. This pixel-precise filtering is done in an LCD or by a micro-mirror array.

This is not a nice solution because it has some disadvantages: First, all the energy for generating the light is invested, and then only a small amount of useful light is extracted, which is relatively inefficient. The energy requirement is higher than necessary. Second, the light that is not needed in the image turns into heat, which I then need to dissipate from the small components. This limits how I can design such a video projector. So, the idea came up: How great would it be if we had LED pixels directly on the driver? Then, only the pixels that are needed in the image would light up. This was an idea we discussed with colleagues in early 2007 during the early development phase. Subsequently, initial tests on PixelLEDs began.

Another approach to enabling controllable light distribution was, back then, to mount several LEDs on a board in a housing and turn them on and off separately. This traditional approach has its limits. Eventually, on a circuit board, it becomes too complex to run all the wires to the LED and back. The power supply and control electronics also need to be accommodated somewhere. You might be able to mount 50 or even 100 LEDs in a housing on a large circuit board, but then the circuit board becomes very complex, and with even more LEDs, a sound barrier is reached, and it’s no longer practical with discrete circuits.

The disruptive step is forward integration - that is, combining the driver chip with the LED chip in the interconnection technology. This makes it possible to increase the number of pixels. The first step was 1000 pixels on an LED





chip, and now we have 25,600. And the long-term goal is Full HD systems, maybe even beyond that.

**Dr.-Ing. Hermann Oppermann:** One might wonder, why does it need to be so small? After all, a car headlight is actually quite large. Isn't there enough space to install hundreds or thousands of LED components? Basically, yes, but the problem is optics: For each individual LED installed, an optic needs to be precisely adjusted to project the patterns onto the road. The multitude of individual optics is not only expensive but also very labor-intensive to adjust. With a light matrix made from pixelated LEDs, the positions of the pixels are defined with semiconductor accuracy.

The whole headlight becomes a „video projector“, and the larger the output image is - that is, the larger the matrix of LEDs - the more complex the optics required to project a sharp image. And optics are expensive. Therefore, the desire is to keep the light matrix as small as possible.

**Which problem does this innovation solve that was previously unsolvable?**

**Dr. rer. nat. Norwin von Malm:** The technology of Digital Light solves the problem of bringing arbitrarily definable, and specifically digitally defined, light distributions to an LED chip. Until then, you could turn LEDs on and off or maybe make them a little brighter or darker, but nothing more. Additionally, circuits with multiple LEDs on a board were all relatively large, much like how electronic circuits were imagined in the 1950s. Transistors, resistors, and coils were mounted on a large board, and all these discrete com-

ponents were connected with wires or traces. The step to Digital Light is now comparable to the leap from this board with transistors to an integrated circuit on a small piece of silicon, where everything fits into a tiny fraction of the size.

As mentioned, the control of thousands of LED pixels to generate definable light distributions was no longer possible with the methods known before. Therefore, the power for this matrix of LED pixels must come directly from underneath, right under the pixel. This can be achieved by segmenting the LED, essentially creating small pixels. These pixels are then placed directly onto an electronic driving circuit, so that each pixel has its own power source right underneath. We had discussed this with automotive colleagues and concluded that this would be the solution for such a car headlight.

**Regarding the technology and combination of the various new elements: What had to be changed in the chip architecture to enable such a new approach?**

**Dr. rer. nat. Norwin von Malm:** The first task was to segment the LED, meaning separating areas on the chip surface from each other. And not just electrically, but also optically. These segments or pixels must be small, and there must be many of them. The second task was to rearrange the contacting: Normally, an LED has a p-side and an opposite n-side. These are the points where you need to make electrical contact for the LED to light up. Therefore, one contact is usually on one side, and the other contact is on the opposite side. However, this is not helpful for the appli-

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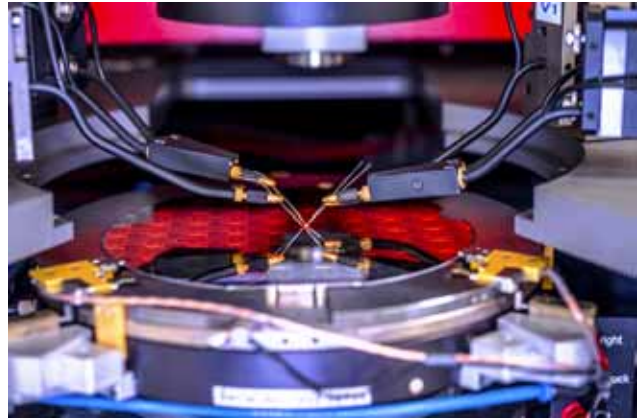
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cation we described, where the LED should be driven from underneath. We therefore need both contacts on the underside. This requires a completely new LED architecture.

Additionally, there needed to be a structured connection layer that allows each LED pixel to be mechanically, thermally, and electrically coupled to the electronic driver circuit. And, of course, a suitable driver circuit.

Specifically for the headlight, there was another challenge: An LED always has only one color - ours was blue. But we wanted to generate white light for the headlight - and white light consists of several colors. To create white light, a phosphor is applied that absorbs part of the blue light and converts it into yellow light. The mix of the transmitted blue light and the yellow light creates the white appearance. This is no problem for standard LEDs. You apply the phosphor layer on top, and then the light becomes white.

LEDs are manufactured on a growth substrate, a wafer. When the LED wafer is connected to the electronic driver circuit, the growth substrate is still on top. Although it is transparent, which wouldn't normally be a problem, this transparent growth substrate ensures that I no longer have pixel contrast when I apply the phosphor layer. When I turn on a pixel, the entire surrounding area lights up because this transparent substrate transmits the light. Therefore, the growth substrate had to be removed. A new laser-based process was developed for this. However, this process for removing the growth substrate significantly impacts the connection layer to the driver circuit. This had to be taken into account in the process flow and in the design of the connection layer.

Another issue is the thickness of the phosphor layer. The layers typically used for standard LEDs are much too thick to achieve sufficient pixel contrast. If the pixels are only 40 micrometers wide and I apply a 100-micrometer thick phosphor layer, the problem arises that when one pixel is turned on, about ten pixels light up. Therefore, another task was to make the phosphor layer thinner to achieve the perfect ratio of pixel width to layer thickness. This way, only the area of the turned-on pixels lights up, not the area of the adjacent turned-off pixels. This required the development of a new phosphor with much smaller particles and a coating process that applies such thin phosphor layers evenly across the LED surface.

All of these steps were necessary and had to work for the whole system to be ready for use in a headlight, as we envisioned it.

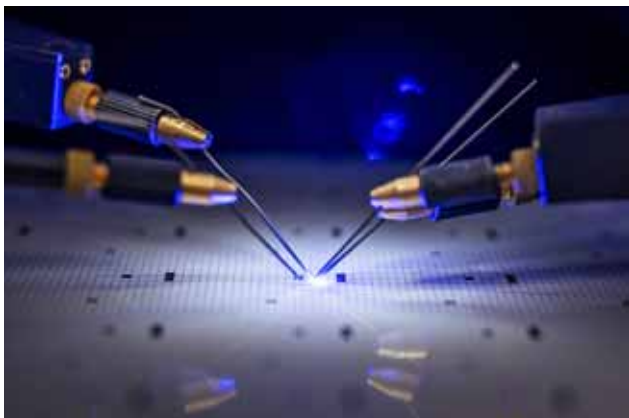
### What was the innovation process from the first idea to the product?

**Dr. rer. nat. Norwin von Malm:** We started around 2008 with concepts and the questions: „How do you realize such an LED for Digital Light?“ We felt confident about handling the LED and the pixelation ourselves. But the big questions were: „Where do we get this driver circuit that is suitable?“ and „How do we connect everything, so that each LED pixel also has thermal, electrical, and mechanical contact with the carrier wafer and the driver circuit?“

It quickly became clear to us that we needed to bring partners on board. We needed someone with expertise in silicon and electronics, which at that time was Infineon. We were looking for someone to handle the interconnection technology of the two semiconductors, and for this task, we chose Fraunhofer IZM. Additionally, we sought partners who could integrate everything further into the headlight and the car. At that point, companies like Hella and Daimler got involved. Together, we worked with our partners in the funding project „μ-AFS“ by the Federal Ministry of Education and Research. Under the leadership of Stefan Grötsch, intensive prototyping took place from 2013 to 2016.

**Stefan Grötsch:** In the beginning, we had to face some setbacks, particularly regarding the required size of the LED chips. There were phases where we spoke weekly to clarify where we stood and when certain patterns would appear where. In the end, this led us to have a vehicle with such a pixel headlight at Daimler in 2016. We were able to conduct a first test drive at the factory site and tested the technology live in the vehicle application for the first time. A huge success: We had demonstrated for the first time that pixelated LEDs can be directly mounted on a silicon driver and also operated – inside the headlight, in the car. With the positive conclusion of the funding project, we set the starting point for the industrialization of the technology. From then on, however, a lot of work was still required to bring it truly to market.

**Dr.-Ing. Hermann Oppermann:** When Fraunhofer IZM first presented the concept to us, it became clear what the biggest challenge was: Connecting two different semiconductors with different expansion coefficients - meaning they expand at different rates when temperature changes. It became clear that this wouldn't be easy due to the thermo-mechanical stress and that it would be difficult with standard solutions. Each LED pixel, each light point, had to be



electrically connected to an individual circuit on the CMOS wafer. Each LED chip had several hundred such pixels, all of which had to be connected to the CMOS driver. We had to find solutions for several challenges: primarily regarding the high pixel density, thermal dissipation, and the high current demand necessary to operate the pixels. In addition to the electrical contact for powering the LED pixels, other contact areas were created to thermally couple the LED chip more effectively to the CMOS chip, ensuring that both chips formed a mechanically robust unit.

At the start of the project, the LED component was also smaller with fewer pixels, and we faced the challenge of mounting four pixelated micro-LEDs very close to each other to create larger units. We developed new concepts at that time to meet these requirements: We approached the project with a novel connection technology. For example, the connections themselves encapsulated. Additionally, we achieved a very high thermal conductivity, so the heat could be dissipated. We began with a fixed matrix circuit that was already in place early in the project, before the driver circuit could be fabricated, to allow us to develop the mounting of the LED chips on the CMOS wafer. The results with the new concepts looked really good from the beginning.

We initially started by mounting LED chips onto CMOS chips and creating pixel-perfect connections. For subsequent processes, however, it became necessary to mount the LED chips onto complete CMOS wafers and create pixel-perfect connections there. The mounting at wafer level became an additional challenge. We then also submitted a request for additional funding to make wafer-level mounting possible and connect over 1,000 LED chips per wafer. This enabled us to provide complete driver wafers for the subsequent steps with Osram.

#### What was the most time-consuming part?

**Stefan Grötsch:** At the end of 2016, we had demonstrated feasibility – up to the vehicle. From that point, industrialization for a light source with 1024 LED pixels on 4x4 mm<sup>2</sup> began with the BMBF partners. This product idea was very close to the outcome of the research project. However, there were some application-related challenges, and we slightly underestimated the efforts required for headlamp integration. These were acceptable within the research project, but not feasible for mass production.

As a result, a fresh start for the product concept took place in 2018. As much as possible, I tried in the role of sy-

stem architect to consolidate our customers' needs: „What is the solution that is relevant for you?“ Around this time, the video projection technology with micro-mirrors as passive light modulators had made its way into cars. With this, many more pixels were now able to project pictograms onto the road, although with lower efficiency.

To address all of this, we industrialized a product that, with approximately 41 mm<sup>2</sup> of LED area, realizes 320 x 80 pixels in a 40-micron grid. The brightness is sufficient to illuminate a headlamp area of about 24 x 6 degrees from a lens with more than 80,000 cd. This now makes it possible to project pictograms in combination with high efficiency. It enables smaller installation spaces with cost-effective projection optics and simpler cooling in the headlamp.

What became possible that wasn't before? What would have been too complicated or too large previously?

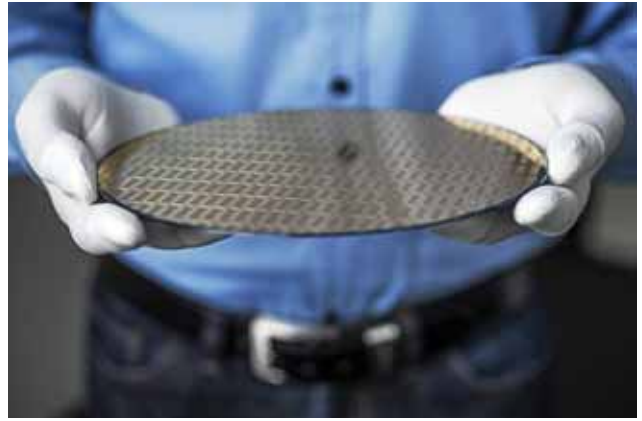
**Stefan Grötsch:** In fact, we significantly increased the size of our LED array, driven by the desire to illuminate as wide an angle as possible of the headlamp cone with just one optic, from 4 mm<sup>2</sup> to 16 mm<sup>2</sup>, and finally to 41 mm<sup>2</sup>. At the same time, to display more details, we had to reduce the size of the controllable LED element from 1 mm<sup>2</sup> to 125 µm x 125 µm, and now to 40 µm x 40 µm. In total, our customers can now build headlights that, for example, can switch from left-hand to right-hand traffic or to US standards via software, in accordance with UNECE regulations.

To avoid blinding other road users, it is now possible to control pixels that have a side length of just 3 to 4 cm even 25 meters in front of the vehicle. Information can now be projected onto the road for the driver: For example, the snowflake pictogram, which warns of icy conditions, is already legally allowed. Warnings for tailgating or the „Caution! Wrong-way driver!“ warning are also possible. Likewise, it's possible to indicate when a vehicle is leaving its lane.

#### What roles did the team members have during the development phase of this project?

**Dr. rer. nat. Norwin von Malm:** The experience I gained with segmented LED chips starting in 2008, along with the understanding from customer discussions about the desired headlamp, was the starting point. I initially conceived the concept for a pixelated LED for this headlamp - how it could look on such a driver circuit and what would be needed for it. But it quickly became clear that we could-





n't do everything on our own. During the pre-development phase, I led the technical work on the pixelated LED chip.

**Dr.-Ing. Hermann Oppermann:** We, at Fraunhofer IZM, were responsible for the connection technology and the galvanic deposition on the wafers. This involved applying thin gold pads on the wafers with the driver circuit, as well as gold-tin on those with the pixelated LEDs. So, we applied these connection structures additively to the wafers. These wafers were then sent back to Osram for singulation into chips. We looked at the concept at the time and made two proposals regarding the connection technology. We discussed and then agreed to pursue both approaches in parallel at first. One was based on gold-tin solder, and the second worked with nanoporous gold. We proceeded with both technology approaches, and both were successful. With the gold-tin solder, the pixelated LED chips could be placed on the CMOS wafer, and the connection was made by reflowing the solder. This is a quick process with high throughput and manageable production costs. The LED chips with nanoporous gold were pressed onto the CMOS under force and temperature and connected. The solution with nanoporous gold can be scaled down to very small pixels. Due to the fast assembly process and the existing expertise, the decision was made to continue with the gold-tin solder approach for the wafer-level process.

**Dr. rer. nat. Norwin von Malm:** On one side, we have the pixelated LED, and on the other side, we have the driver array. The question is, how do we bring these two together? And that's exactly the point Hermann brought up - how to connect the two different worlds: the opto-semiconductor world on one side and the silicon semiconductor world on the other side.

#### Were there any special experiences from the collaboration?

**Dr. rer. nat. Norwin von Malm:** There were many, which is why external partners are so important in such projects. It can be a bit more work, as you have to coordinate everything and send samples back and forth. But the advantage is clear: you gain expertise and insights that you wouldn't have on your own. And without the collaboration with the Fraunhofer Institute, this market launch wouldn't have been possible.

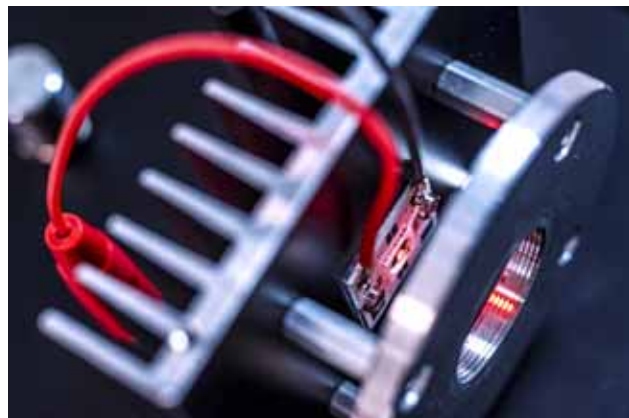
**Dr.-Ing. Hermann Oppermann:** For us, it's always new. The companies bring interesting product visions, and they define a functionality that needs to be ensured, and usually

also the components, like in this case the LED side and the driver side, where we then collaboratively develop solutions. This is always interesting for us, and we also learn something.

**Stefan Grötsch:** Before the project, I developed high-performance LEDs for video projectors, and I had experience with high power dissipation and optical light projection. Through close exchange with LED chip developers, I learned quite a bit about our thin-film LEDs. When the project started, I was an application developer for headlights, directly interfacing with customers in the automotive sector. This gave me the opportunity to coordinate the project at that time. In this role, I learned about the challenges of semiconductor technology and its application with vehicle manufacturers. With these experiences, after the end of the joint project, I was able to define the specifications for the Eviyos LED in coordination with our customers as a system architect. In the very intense years since 2018, I have gradually become more involved in electronics and system development. In recent years, I developed part of the ASIC driver circuit with my team.

#### When does one discover a passion for a field like this?

**Dr. rer. nat. Norwin von Malm:** In school, I wrote a term paper on plastics. At that time, I was fascinated by the idea that you can influence the macroscopic properties of materials if you understand or deliberately manipulate the molecular structure of a material. That was my motivation to study chemistry. After completing the preliminary diploma, I realized that materials science was something quite different. Chemists get excited about a little yellow crystal they somehow synthesize after 20 steps. But that alone didn't satisfy me - I wanted to do something concrete with it. I finished my chemistry studies, but relatively early on, I moved to materials science for my diploma thesis and later for my Ph.D. During my Ph.D., I focused particularly on materials that can generate light when voltage is applied. It was about charge transport in organic semiconductors - specifically, OLED technology. I was fascinated by the idea of combining materials in a meaningful way, applying voltage, and then light coming out. It was just amazing. That's why it was clear to me that I wanted to continue working in the field of light. By chance, I ended up getting a position at Osram, initially as a process developer for thermal processes. It was a broad spectrum of activities and tasks, and



over the years, it evolved. But the fascination with light and how to generate it remained.

**Dr.-Ing. Hermann Oppermann:** My path was almost similar, at least in terms of materials science. I studied materials science and materials technology in Clausthal, then moved to Berlin and did my Ph.D. in metal physics. These were topics that were quite broad and had nothing to do with what I do today. I then had the opportunity to join the research focus „Technologies of Microperipherals“ and later moved to Fraunhofer IZM to further develop the connection technology based on metals. There, I got involved early with optoelectronics and sensors, and I maintained a good relationship with colleagues while always searching for specific solutions for new applications.

**Stefan Grötsch:** I more or less chose microsystems technology by chance. During my studies, after a short detour into silicon memory manufacturing, I had the opportunity to work with surface-emitting laser diodes. From then on, photons captured my interest, and I found my entry point with the infrared high-power laser diodes in Siemens' semiconductor division. After some time, we ventured into color laser diodes with the vision of creating video projection. Then the idea arose to also use LEDs for projection, a topic that had fascinated me for a long time. Shortly after the research project, the first LED projector with a micro-mirror array and 25 lm hit the market. The last prototypes before I moved to the automotive sector delivered 2000 lm. And this video topic was somewhat related to the dynamically controllable headlight topic. In the end, it's basically black-and-white video that we now project onto the road.

**The success of a project is often measured by user satisfaction. What was the feedback when it was applied in real-world use?**

**Stefan Grötsch:** In the headlamp sector, we see that our active light technology is displacing passive pixel modulators - the system where all light is always on and then filtered accordingly. This is due to better efficiency, smaller form factor, or the now larger far-field range of our digital light technology. Our customers are also realizing new use cases in the headlamp. One example is the dynamic light carpet on the highway. Especially when there is oncoming traffic, I perceive my lane as less illuminated at night. A higher foreground brightness from lane marking to lane marking increases safety. I can also signal to the vehicle next to me that I am changing lanes when my light carpet

expands. The technology also allows me to signal the width of my vehicle in highway construction zones and tight spots, so I can better assess: „How narrow is the construction site, can I pass through easily?“ Studies have shown that uncertainty in construction zones, such as „Can I overtake? Should I stay behind the truck?“ drastically decreases. This results in less stress in these driving situations. From an economic standpoint, we can say that with the product, we have won many projects that are now coming to market.

**What about the scientific community? Has there been any feedback on the publications related to the project?**

**Dr.-Ing. Hermann Oppermann:** It definitely attracted some attention that we were able to build a headlight with a finely pixelated LED light source. After the project ended, we couldn't immediately publish, but we made a coordinated publication where many concepts were not fully disclosed in detail. However, the insights we gained have certainly contributed to other projects. This also means that similar specifications could rely on and further develop this technology.

**But do you see digital light as a future trend in research?**

**Dr.-Ing. Hermann Oppermann:** Yes, we are heavily involved in the field of photonics, particularly data communication in data centers, high-performance computing, and neural networks. These are classic research topics today. The challenges here are similar to, for example, the high-density arrangement of light sources and the integration of fast-switching electronics. There are certainly transferable concepts from the  $\mu$ AFS project that we are examining, including the wafer-level mounting technology.

**Dr. rer. nat. Norwin von Malm:** We too have made scientific publications now and then as we've continued to develop the miniaturization of these pixels. These publications have been well received and found resonance in the scientific community.

**What about future applications - what steps are still needed?**

**Dr. rer. nat. Norwin von Malm:** So far, we've only talked about the headlamp application. But the theme is „digital light“, not „the new headlamp“, If you can miniaturize





LED pixels and place them directly onto a driver to control them, this technology can be applied to far more than just car headlights. One possible application could be augmented reality (AR) glasses. These glasses need a projector built into them to reflect virtual data into the eyes, which then overlays with the actual real-world image. Today, large helmets are being built with projectors inside. But many people don't want to wear that. However, if in the future this can be integrated into a normal, wearable pair of glasses, it would need to be a very, very small microdisplay. And it must be very energy-efficient because no one wants to carry a large battery pack. It must function efficiently with minimal power. That is exactly what could be achieved through the miniaturization of digital light in the future. You can make the pixels very small and very efficient. And because they are directly connected to the driver, the whole system results in an extremely compact projector, which would make applications like AR glasses possible.

**What is the current difficulty with AR glasses? Are they still very large and heavy, like a helmet on your head? Or do they have poor performance, such as lower resolution?**

**Dr. rer. nat. Norwin von Malm:** There are various ways to technically address the resolution, but unfortunately, each comes with a particular disadvantage. It's the resolution that needs to be achieved, the energy efficiency that has to be ensured, and the longevity at appropriate brightness levels. For example, if I'm outside in the sunlight wearing the glasses, I still want to be able to see the virtual image clearly. That means high brightness is required. If the materials can't withstand this kind of strain, the project fails.

**Is the thin phosphor layer a challenge that applies to other applications as well, or is it specific to the headlight?**

**Dr. rer. nat. Norwin von Malm:** This phosphor layer was specific to the headlights because, if you want a digitally predefined light distribution there, you need to ensure that light only comes out where you want it. For general lighting applications, this isn't a concern. But if you want a controllable interior light for a car, that could be relevant again. So, anywhere you want to control white light distributions, you need this thin phosphor layer.

For augmented reality, though, the conversion aspect is not needed. In that case, you need pure red, green, and blue colors. That's how most displays work; they can only display red, green, and blue, with all other colors being mixed from these primary colors. However, this creates other challenges because you not only need to produce blue pixels, like we have in the headlamp, but you also need the other colors. And especially with red, you need to change the semiconductor material system. It's no longer based on gallium nitride, but instead, it's based on indium gallium aluminum phosphide. And there are additional challenges to overcome, particularly regarding the efficiency of the pixels as they become smaller.

**If we now broaden the horizon to possible applications, what opportunities are opening up with AR?**

**Dr. rer. nat. Norwin von Malm:** Applications for AR glasses can be very versatile. In the professional sector, one can imagine a maintenance engineer arriving at a facility and being shown through the glasses what he needs to do: „Here, you need to turn this screw or adjust this part.“ Or, a surgeon in a hospital could have overlaid information in their field of vision, coming from X-ray, ultrasound, or MRI images, marking the area where they should cut. There is certainly a military application as well.

However, AR glasses could also gain widespread use in the consumer sector: The idea is that eventually, we won't be carrying our phones around anymore and staring at the black box. All the information we currently retrieve on our smartphones would then be directly integrated into the glasses. This would drastically change the interface between humans and IT. From my perspective, this will have a significant impact on society.

**Dr.-Ing. Hermann Oppermann:** Today, there are solutions with OLEDs. But they lack brilliance - brightness and contrast - when displaying something under normal lighting or outdoors. For that, you need very small LEDs. And in terms of size, they need to match the OLEDs or even surpass them. This is exactly where the LEDs of digital light come in, with their multitude of individually controllable pixels, and they have the potential to succeed in the field of augmented reality projectors in glasses and as head-up displays in cars.

**Dr. rer. nat. Norwin von Malm:** Beyond cars and AR, this technology also opens up a wide range of other applications, some of which we may not even be able to imagine today. Another example, which is already possible, is transparent displays. For instance, a display could appear on a windowpane at the push of a button. This can be done by placing these very small pixels, spaced apart, on the window glass with the appropriate driver circuitry behind it. The whole thing remains transparent because the area covered by the LED pixels is very small, leaving much of the surface open. In the space between the pixels, one could also incorporate microsensors. For example, I could place small light-sensitive photodiodes between the LED pixels, creating a kind of distributed 3D camera capable of gesture recognition or facial recognition, verification, and so on.

So far, we have only spoken about applications in projection or display areas, where information is projected or displayed. However, light is also a carrier of information, but on entirely different levels. For example, in computers, to further advance artificial intelligence (AI).

The technology of digital light can also be used for data communication between servers or between various computer chips. Today, AI is somewhat limited because a processor cannot communicate with enough memory simultaneously. This is simply due to the fact that copper connections are needed to link the processor with the memory, meaning the memory has to sit right next to the processor. This eventually limits the available space around the processor, and no more memory can be added. But now, these small LED pixels can be used as an array - essentially a matrix of X by Y chips - to couple into a fiber bundle. This creates a kind of glowing 2-D QR code. This QR code is transferred in parallel, meaning simultaneously, through the fiber bundle to a detector side made up of the same



number of light-sensitive detectors. This allows these QR codes – digital data, nothing more – to be transferred one by one through the optical cable. This allows memory to be placed further away from the main processor.

So, I can optically connect more memory to this processor, and this is thermally better. This will be a crucial building block for getting AI applications to run.

#### **What AI applications would be possible here?**

**Dr. rer. nat. Norwin von Malm:** All the applications that we think about today in cloud computing would require this kind of optical data transmission technology because electrically, you're simply limited. And if you think even further into the future, you could imagine not just transferring information from A to B but also performing optical computations. In other words, a kind of optical computer processor. In this case, a matrix of LED pixels would interact with a matrix of photodiodes. This interaction would represent the connection between a neuron and several other neurons. With the vast number of pixels, complex neural networks could be artificially created. And this could potentially be the new computer of the future.

#### **When talking about energy savings, it's no longer necessary to turn everything on, but just the parts that need to be activated. Does the energy saving come more from not having to mount everything on a circuit board, or from the electrical contacts that are only activated individually?**

**Stefan Grötsch:** The energy efficiency comes from only activating the LEDs during the times when the light is truly needed for the image. This is a major difference from other technologies, where the entire lighting is activated and then parts of the light have to be destroyed. In the specific example of the headlamp, the competing technology is running at a constant 60 to 70 watts to generate a smaller light yield. Our module consumes on average 19 watts and up to 40 watts at its peak, but with 40 watts, it provides double the light output. This is due to the active control of the pixels.

The data rates are also a challenge we had to overcome. Even with 25,600 pixels, we have to manage data streams at 3 to 12 gigabits per second at the lowest level. In contrast, in a car, we usually see data lines that only deliver one megabit. This led us to search for solutions on how to bring video technology into the headlamp. These are aspects that we have now tackled in electronics development, laying the groundwork for shifting applications from headlamps to video applications for AR or similar topics.

**Dr. rer. nat. Norwin von Malm:** This energy efficiency is particularly important when you can only carry a small amount of energy, like with AR glasses, where the battery needs to last for a while. If you follow approaches where the entire image is illuminated and then selectively filter out light to create an image, that is not efficient and is simply not a sustainable solution.

In data communication: If you solve this optically instead of electrically, you could operate with just a quarter of the energy. It is well known that data centers, which provide the internet, today require an immense amount of energy for cooling, but also to shuffle the data back and forth. This could work with far less energy if we use LED pixel arrays

here, where we transfer signals optically instead of electrically.

#### **How will digital light change our world?**

**Dr. rer. nat. Norwin von Malm:** I believe this will happen in waves. The big potential today is in automotive headlights and taillights. In the future, segmented designs will also come to market in taillights, and for that, individually controllable red LED pixels are needed. The next wave will be Augmented Reality. And this is also the part that might make the change through digital light technology more apparent to people than in cars. In a car, I sit down, drive, and the digital light illuminates my way. People interested in the subject will notice the variable light distributions, but maybe not everyone. With Augmented Reality, however, it's visible to everyone that you no longer need to carry your phone and that all the important information is reflected into your eyes through your glasses. Topics like artificial intelligence or neuromorphic networks could, if it comes to pass, sustainably change our society in the future.

#### **What steps are still necessary to bring such innovative products to market outside of the automotive industry?**

**Dr. rer. nat. Norwin von Malm:** Efficiency is still a problem here. The standard LED is already near its efficiency maximum. There might still be a percent or two to gain here and there, but there's not much more to expect because we are already very close to the 100 percent mark, and there's no going beyond that. If you make these pixels smaller and smaller, the efficiency drops drastically. With the smallest pixels, we're talking about efficiencies of one or two percent or so. This is because, as the LED pixels get smaller, the „edge“ of the light-emitting layer increases in relation to the surface area. And this edge unfortunately consumes the electricity due to defects in the semiconductor crystal without emitting light.

With larger LEDs in the millimeter range, this isn't a big problem, but when the pixels are only a few micrometers in size, they're practically made up entirely of edge. So, there's still a lot of room for improvement in terms of efficiency. This will need to be addressed to handle these applications effectively - and this is something we are currently working on.

#### **Looking at the big societal aspect: What impact will this innovation have on the industrial sector?**

**Dr. rer. nat. Norwin von Malm:** I believe we will see a variety of different applications that might not immediately be associated with the technology of Digital Light, but which will still significantly change our lives. This will indirectly affect us, without anyone realizing it's Digital Light.

**Stefan Grötsch:** In the car, the main aspects are safety, comfort, and efficiency. Safety is highly relevant because the technology can help prevent accidents. Statistics show that driving at night is particularly accident-prone relative to the hours or kilometers traveled. Improved lighting technology is always a lever to help improve that. Augmented Reality, when it is rolled out, will be as relevant as the introduction of smartphones and tablets into our lives. These



are consumer waves that have rolled into society, and this will be similar.

**Dr.-Ing. Hermann Oppermann:** I can only confirm that. I also think that Augmented Reality will change quite a bit, both on the product level and likely also on the experience level – how people will interact with it. In the area of data communication, this will likely be invisible to many. But the energy being consumed today needs to be reduced. We need more energy-efficient data communication, meaning more energy-efficient processes. And we will experience that, even if we don't see it.

#### What are the next steps?

**Dr. rer. nat. Norwin von Malm:** Miniaturization, meaning making the pixels smaller, fitting more pixels into the same area. The RGB theme - red, green, blue instead of just white - and integrated sensor technology will be areas to continue working on. The goal is to place sensors into transparent displays so that you can have a transparent sheet that can not only display any kind of information, but also recognize my reaction to it.

**Dr.-Ing. Hermann Oppermann:** In the project, we worked with pixel arrays that had to be mounted. When you move to RGB, you will probably move away from arrays, and in-

The recipients of the Future Prize (l-r):

**Dr.-Ing. Hermann Oppermann,**  
**Dr. rer. nat. Norwin von Malm,**  
**Stefan Grötsch**

stead, you will need to transfer each individual pixel. So, we're talking about technologies where multiple LEDs are assembled in one step. There are different research directions in this regard. It will also be important to ensure the electrical contact, in addition to the transfer process. These are two essential challenges that we are currently working on intensively.

**Stefan Grötsch:** Specifically, in the headlamp area, I see, in addition to the trend Norwin already mentioned - smaller pixels, more pixels, larger areas - the necessity to deal with data communication in cars. How will it be handled? How will this additional data, required for each pixel, be delivered to the subsystem and to the chip? This is definitely a topic that my team and I are working on today. There is a shift in electronics architectures in the industry, and we need to take that into account in order to prepare accordingly.

[www.deutscher-zukunftspreis.de](http://www.deutscher-zukunftspreis.de)



Audio-Technica

### System 20 Pro

Audio-Technica has launched the System 20 Pro, a self-managed, digital 2.4 GHz wireless system with plug-and-play functionality, scalable to 20 channels and delivering reliable, high-quality audio. The system was designed for easy use and overcomes many challenges associated with traditional wireless microphones, such as interference from TV broadcasters and frequency coordination, complex intermodulation calculations, and the cabling of remote antennas. The ATW-R1440 receiver in the system can receive up to four transmitters, simplifying installation. The receiver units can remain docked in the half-rack housing or, for added versatility, be mounted up to 100 meters away and connected via standard Ethernet cables. Up to five chassis can be connected using the included RJ12 cables, creating a stable multi-channel system with simultaneous use of up to 20 channels. The user can always choose the most effective operating mode for a specific situation: Standard mode (10 channels) to minimize latency or HD mode (20 channels) to maxi-

mize the number of channels. Seamless setup and management are controlled via the Audio-Technica Wireless Manager software, which can manage multiple UHF, 2.4 GHz, and DECT wireless systems from a single screen.



Coda

### Hops 10-Pro

Coda Audio expands its Hops series with the new Hops 10-Pro. The Hops 10-Pro is available in two variants: Hops 10T-Pro (for touring) and Hops 10iPro (for fixed installations). The Hops 10-Pro is a powerful 3-way passive full-range point source. The compact and lightweight speaker enclosure houses two low-distortion 10" cone drivers with neodymium magnets, ensuring performance and precision in the bass range, as well as a coaxial 1.4" neodymium dual-ring diaphragm driver for the mid and high-frequency transmission. The arrangement and design of the sources guarantee a coherent and maximally homogeneous wavefront. With the addition to the existing Hops-Pro series models (Hops 7-Pro and Hops 12-Pro), the series now offers users greater flexibility for a wide range of applications. All models in the HOPS-Pro series use the same Coda Audio technologies as those used in the line-array series and products. The uniform frequency and phase response ensure maximum acoustic compatibility and further synergies with the Coda Audio portfolio.

Tascam

### FR-AV2

Tascam introduces the FR-AV2, a compact, high-resolution 2-track field recorder with time-code capabilities. The new FR-AV2 is ideal for small to medium-sized film and video productions, wedding and special event videography, as well as video journalism, and takes on professional recording tasks that would typically require larger equipment. The key feature of the FR-AV2 is its dual analog-to-digital converters (ADCs) with 32-bit floating point resolution. By using two ADCs, recordings capture a larger dynamic range and more detail, making it virtually impossible to overdrive a recording. When editing audio recorded in 32-bit float, quiet passages can be boosted and loud parts lowered without adding additional noise. The FR-AV2 is unique in that no other recorder of this size on the market supports 192 kHz audio recording. The combination of these two features and the use of ultra-HDDA pre-amps provides unparalleled clarity and sonic precision. The new Tascam recorder is Bluetooth-ready for monitoring. It can generate timecode, allowing videographers to easily synchronize their cameras with high-quality sound. Through its USB-C port, the FR-AV2 can also be used as a USB audio interface with two inputs and outputs for iOS, Mac, or Windows-based devices.



DAP

### Frigga

DAP announces the release of Frigga, a new single-column plug-and-play PA system designed to meet the growing demand for sophisticated, high-performance audio solutions in the modern event industry. The DAP Frigga is designed to support singer-songwriters, corporate presenters, DJs, and venues. It features a robust amplifier with three dedicated channels for subwoofer and mid/high frequencies, delivering up to 1000 W RMS and 2000 W peak power. The system includes a powerful subwoofer with two 12-inch woofers that provide the deep bass for a rich sound experience. The upper speaker is equipped with six 4-inch neodymium midrange drivers arranged in a line-array configuration to ensure optimal sound distribution and minimal distortion. In the center of this array is a 1.5-inch neodymium tweeter, coupled with a waveguide to deliver precise and clear high frequencies, perfect for reproducing the subtle nuances of music and speech. The preamp of the DAP Frigga is equipped with three versatile inputs for different audio sources. There is a microphone input, a line input (both with combined XLR/jack connectors), and a Bluetooth 5.0-compatible input for seamless integration with modern devices. The Bluetooth 5.0 module supports True Wireless Stereo (TWS), allowing two DAP Frigga units to be wirelessly paired and deliver impressive Bluetooth stereo sound. The DAP Frigga is now available from authorized dealers.

## Worldwide availability

Blaze Audio, a manufacturer of professional audio solutions for the installation market, has announced the worldwide availability of its speaker product line for commercial use, the Ci Series.

The Ci Series was acquired earlier this year by Cornered Audio ApS from Denmark and complements Blaze Audio's Power Zone amplifiers, software, and controllers. The Ci Series, consisting of the models Ci2, Ci4, Ci4-V, Ci5, Ci5-V, as well as the subwoofers C8S and C12S, was specifically designed for use in commercial and hospitality environments. The surface-mounted speakers allow for discreet installation while delivering sound with broad and even coverage.

The IP-certified Ci Series includes 2-way full-range speakers that are suitable for a variety of indoor and outdoor applications in commercial properties, such as retail stores, restaurants, cafés, and meeting rooms. The patented 90-degree triangular ABS housing with integrated sliders fits into both vertical and horizontal corners and can be combined to extend coverage to 180 or 270 degrees. For enhanced bass performance, the speakers in the Ci Series can be paired with the C8S and C12S subwoofers in indoor environments.

George Tennen, VP of Sales & Marketing at Blaze Audio, says about the new series: „Our new Ci speaker line, combined with our Power Zone amplifiers, software, and controllers, forms an ideal product combination that has been designed from the ground up to meet the diverse requirements of installation projects across various environments.“

The key features of the Ci Series by Blaze Audio include a triangular ABS enclosure designed for vertical and horizontal corners, bracket-free or concealed sliding mounting for easy single-



person installation depending on the model, and outdoor IP65 certification (IP64 for the Ci2). The series features a metal grille, switchable 100/70-V mode or 8-ohm mode for selected models, and concealed cable connections. Some models also offer a switchable tweeter protection circuit. The speakers are compatible with Blaze Audio's C8S and C12S subwoofers, providing a 100° vertical and horizontal coverage, which can be combined for 180° or 270° coverage depending on the model. The Ci Series is available in black and white.

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## Master of his class

With over 8,600 mastering credits, more than 90 billion streams, 21 Grammy Awards (with a total of 58 nominations), three TEC Awards, two Juno Awards, and a Mercury Prize to his name, audio mastering engineer Howie Weinberg is in a class of his own.

He has worked with some of the biggest names in the music industry across nearly every genre, from hip-hop, alternative, and R&B to rock, pop, heavy metal, and EDM. Weinberg's name is synonymous with iconic albums such as Nirvana's „Nevermind“, Madonna's „Music“, and the Beastie Boys' „Licensed to Ill“.

Today, after more than four decades in the industry, Weinberg is still working from his professional home studio in Laurel Canyon, California. „We are in the heart of an artistic area“, he says. „There's a huge recording scene here, and we're surrounded by many other famous creatives. My house is an old hunting lodge from 1910. You can really feel the energy and great atmosphere. In addition to two other studios on the property, I have a personal

studio that's just as beautiful as any commercial space I've worked in - very Californian.“

No matter where he sets up, Weinberg has always relied on KRK monitors and continues to use the KRK V Series in his studio. „I was one of the first KRK users. When they first came out, the founder himself introduced me to the original 7000 series speakers“, he says. „And the KRK engineers have done a great job recreating that sound in the V Series. The V8s sound really good.“

Weinberg especially appreciates the compact nature of the V Series: „Artists are sometimes overwhelmed by huge monitors, so it's good to have a compact alternative like the V Series“, he says.



„These monitors have really good imaging - across all frequencies. And they have good amplifiers, which can play really loud - if the clients want that.“

In addition to his current eight-inch V-Series 8 monitors (V8), Weinberg has also worked with the six-inch (V6) and four-inch (V4) models: „These speakers have strong bass. In the mids, you can always make them sound bright, but the huge bass range is something special. I also have a pair of V4s in a small, secluded beach house so I can check records there.“

When Weinberg is on the road, he uses the KRK Go Aux Mobile Monitoring System. „The Go Aux are cool - whenever I go somewhere, I pack them up and go“, he says. „My assistant finishes all our projects, and when I'm not in the studio, he can still send me the files so I can listen to them with the Go Aux. I also use them when I visit clients, which allows the artists to hear their music in different environments - whether it's in my professional studio or their living room.“

Although they are designed for mobile applications, Weinberg also uses the Go Aux as commercial speakers in a small program-

ming room. „Unlike traditional consumer monitors, the Go Aux are not exaggerated“, he says. „They can be used both wired and wirelessly via Bluetooth, are not heavy, and have a professional sound despite their small size.“

Weinberg also appreciates the Go Aux for general listening: „I don't go on vacation very often, but when I do, I take the Go Aux with me so I can listen to music anywhere. They come in a case, so they're easy to take - an alternative to headphones.“

Weinberg's studio headphones include the KRK KNS 6402. „They're a good reference source - not overly constructed, so they sound just as good as higher-end consumer options. And they're very precise in terms of bass and treble.“

In addition to Nirvana, Madonna, and the Beastie Boys, Weinberg is also known for his mastering work on albums by Prince, Yoko Ono, Metallica, Eddie Van Halen, Miley Cyrus, Mariah Carey, Sinéad O'Connor, Foster the People, The Black Keys, Smashing Pumpkins, Gary Clark Jr., Def Leppard, Run-DMC, The Killers, and many others. A complete overview of Weinberg's work can be found on his Spotify playlist.



AJA

## OG-Colorbox

AJA introduces the OG-Colorbox, a new device that combines AJA's Colorbox color management and conversion toolset with an intuitive web interface in an Open Gear form factor. Additionally, the 3.0 update for Colorbox has been released. The OG-Colorbox offers ultra-low latency, high-density 4K/UltraHD High Dynamic Range (HDR) and Wide Color Gamut (WCG) video processing, extensive HDR/WCG conversion options, color correction, and custom Look-Up Table (LUT) processing for live productions. This functionality enables users to meet nearly every color-grading requirement in live productions - from correcting specific camera colors to real-time conversion between SDR and HDR. „The demands on live productions are continuously rising, especially with the growing adoption of HDR and cinema workflows in live-event broadcasting“, explains Nick Rashby, President of AJA. „OG-ColorBox provides an extensive toolset to meet these challenges. It integrates the proven functions of our award-winning Colorbox into the high-density, industry-

standard Open Gear form factor. With support for various color and look-management approaches, as well as the ability to convert between SDR and HDR, OG-Colorbox delivers real-time processing with unparalleled low latency.“



Riedel

## SAME - Smart Audio & Mixing Engine

Riedel's innovative software suite SAME is based on the latest Commercial-Off-The-Shelf (COTS) server cluster technology to enable scalable processing functions. With a comprehensive suite of over 30 professional audio processing tools and mixers - ranging from automatic leveling and dynamic equalization to 5.1 upmixing, loudness meters, and signal analyzers - the solution is suitable for a variety of applications such as voice-over, automated mixing, audio monitoring, and in-line process insertion. Combined with Riedel's new Network Stream Adapters (NSA) universal inputs, users benefit from fully automated signal flow from microphone to ear. The unique SAME Audio Pilot ensures that sound engineers always keep track of all ongoing productions. Additionally, the Audio Pilot features a process- and mixing-console-independent audio monitoring system with fully automated switching of listening paths, allowing users to instantly select and monitor any ongoing process in the entire system without manual signal routing.

Salzbrenner Media

## Lace Net IDU-A

As part of the network-based Lace Net system, Salzbrenner Media introduces the Lace Net IDU-A, a universal device for visualizing information in stage and live theater operations. Unlike traditional light indicators, the use of a 7" TFT display allows not only the usual color fields but also symbols, texts, or more complex information to be displayed. Displays are made available with minimal latency and synchronized across devices. The device can be operated either wired (powered via PoE) or wirelessly (WLAN), equipped with a replaceable battery. Prepared for tripod use, VESA mounting, or as a standalone unit, numerous deployment scenarios are possible. Like all Lace Net components, the Lace Net IDU-A is centrally controlled and continuously monitored.



sync

## MCC-HD2

Insync Technology introduces the first dual HD broadcast frame rate converter fully integrated into the SMPTE 2110 standard, offered in a compact 1-RU format (1 Rack Unit). The SMPTE 2110 standard specifies a series of IP transmission methods for real-time trans-

mission of video, audio, and metadata, making the Insync MCC-HD2 a key component of global broadcast workflows for live events, particularly sports content. „The 2110 standard suite offers facilities and system integrators the opportunity to benefit from a range of new advantages by switching to packet-switched network connections. Combined with NMOS, we finally have a more scalable and flexible solution for signal routing“, says James Shepherd, CTO of InSync. „The MCC-HD2 supports SDI inputs and outputs as standard, ensuring compatibility and ease of integration into existing infrastructures. With this 2110 option alongside SDI connectivity, broadcasters can transport content in a purely IP-based workflow or bridge into and out of the IP domain to SDI.“ The MCC-HD2 supports both Standard Dynamic Range (SDR) and High Dynamic Range (HDR) conversion, enabling flexible and future-proof workflows and providing advanced, intelligent deinterlacing and interlacing functions to ensure content is displayed in the best possible quality.







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GLP

## Creos

The new Creos from GLP is a powerful, IP65-certified LED washlight with 18 x 40 W RGBL LEDs and motorized zoom. Thanks to its clusterable design with consistent LED pixel pitch, multiple units can be horizontally aligned to create a seamless, massive LED bar. The wide zoom range allows for large-area wall wash applications, while the particularly narrow beam enables unprecedented light curtains with impressive light intensity. Due to its versatility, the Creos combines the functions of multiple fixtures in one unit, saving weight in the rig. The eighteen 40 W RGBL LEDs in the GLP Creos are arranged in three rows of six pixels each. The motorized 1:12 zoom ranges from a powerful 4.3-degree beam to a strong, homogeneous 52-degree wash. In addition to the standard color temperature of 6500 K, users can select other fixed color temperatures (3200 K, 4200 K, 5600 K, and 8000 K). Thanks to the proprietary GLP iQ.Gamut color mixing algorithm, which automatically adds the color Lime, the high-quality mode guarantees a TLCI of 77. The Creos delivers a total output of 7600 lm with up to 673 kcd light intensity. With the motorized, 190° tilting head, the fixture can cover different lighting scenarios. The wide zoom range allows for mid-air beams, pixel mapping, and wall wash effects, making it a true all-rounder in any environment. The IP65-certified housing allows the Creos to be permanently used indoors as well as temporarily outdoors.



Ayrton

## Veloce Profile

Following the global success of the Rivale Profile, with over 10,000 units sold in less than a year, Ayrton introduces the new Veloce Profile. This second fixture in the „Ultimate“ family was specifically developed for use in large venues. The Veloce Profile is IP65-certified and can be used under all conditions, both indoors and outdoors, including in salt-laden environments. The fixture sets new standards in integration with a new, sealed monoblock LED module with 850 W, high efficiency, calibrated to 6500 K, and offering a luminous flux of 43,000 lumens. The proprietary optical system with 13 lenses provides a zoom range of 13:1 and a zoom range of 4 to 52 degrees, with the 180 mm front lens able to produce an ultra-intense 4-degree beam. Like all fixtures in the „Ultimate“ series, the Veloce Profile features a new CMY color mixing system with ultra-fast, high-resolution discs, significantly improving color intensity during reproduction. An ultra-fast, high-resolution CTO color wheel allows precise color temperature adjustment from 2700 to 6500 K. A color wheel with seven positions and special filters completes the range of color options. The Veloce Profile features two overlapping, rotating gobo wheels, each with seven interchangeable high-resolution glass gobos for special effects. At 40.5 kg, the Veloce Profile is the lightest in its class. The use of new aluminum parts has significantly reduced weight to achieve the best performance-to-weight ratio on the market without relying on unstable special alloys.

Showtec

## Titan Strobe Flex FX

The Showtec Titan Strobe Flex FX is the latest innovation in stage lighting. It features eight powerful pods, each equipped with a 100-watt COB LED in cool white behind a Fresnel lens, delivering sharp and intense strobe effects. These effects are perfect for high-energy environments such as concerts, festivals, and large productions where impressive lighting is essential. Around each COB LED are 12 integrated 2-watt RGBW LEDs that can be individually controlled, providing precise control for designing complex and dynamic lighting designs. The unit seamlessly integrates into modern lighting systems thanks to its Art-Net and sACN compatibility and works flawlessly with larger systems. It also includes the RDM (Remote Device Management) function, allowing for remote monitoring and adjustment to ensure optimal performance. The IP65-certified aluminum housing ensures that the Titan Strobe Flex FX can withstand the toughest conditions, making it perfect for both indoor and outdoor events.



ETC

## Halcyon Silent

ETC expands its portfolio of fanless and therefore silent fixtures with the new High End Systems Halcyon Silent. This fixture combines silent operation with exceptional performance and the full functionality of the Halcyon family. The convection-cooled Halcyon Silent is suitable for all venues - such as concert halls or opera houses - where even the slightest fan noise is intolerable. The near-silent operation has been confirmed by a test series conducted by the renowned acoustics specialist Müller-BBM. The result: At full intensity, i.e., without background noise, a sound level of 13 dB was measured, a value so negligible that sound levels below 20 dB are no longer perceptible to the human ear. The Halcyon Silent delivers 18,400 lumens and has a zoom range of 5.5-60 degrees. It also features a new patented color mixing system with twelve discs. This innovative technology allows users to achieve even brighter and more uniform pastel tones as well as deeper saturation. These color sets can be controlled via a simple combined mode or through fully individual control. To expand design options, a variety of gobos are used on two rotating gobo wheels. Additionally, the Halcyon Silent features a framing module and a trifusion system for stepless frost control - everything from sharp projections to strong washes is possible. With the continuously rotatable animation wheel, programmers and lighting designers can comfortably and precisely control the angle position of animations.

## Arri introduces new LED softlight

The Sky Panel S60 Pro, the successor to the Sky Panel S60-C, offers key technical upgrades for optimized workflows and is equipped with innovations such as the Digital Twin and compatibility with Claypaky's digital remote tool, CloudIO.

To meet the demand for increased efficiency in production workflows, the Sky Panel S60 Pro includes new, enhanced technical features and numerous digital innovations. Developed by Arri Solutions, the Digital Twin, an exact replica of the fixture in Unreal Engine, provides unparalleled customization and control throughout the entire production chain. The digital twin reduces workload and improves efficiency during pre-production, on set, and in post-production, as it allows crews to quickly and in real-time synchronize real and virtual camera and lighting systems.

The CloudIO software provides more maintenance capabilities. Developed by Claypaky, CloudIO is the industry's first digital IoT device that works seamlessly in the cloud. CloudIO is ideal for lighting professionals and rentals, offering optimized diagnostics, remote support, and comprehensive service.

For greater flexibility and creativity on set, the Sky Panel S60 Pro is equipped with four LED zones for better pixel control, color accuracy, and optimal light distribution. With its RGBW LED light engine, which offers a wide range of colors and good light consistency, the softlight adapts to any style while ensuring that each scene is illuminated with additional power and true, vivid colors. Another advantage is the improved dimming performance, which allows for smooth, flicker-free dimming even at very low values, providing ultimate control over the lighting.

Following customer feedback, Arri has made improvements to the handles of the device, the position of the control panel, and especially the connection and control options. The fixture, which



is comparable in size and weight to its predecessor, features an integrated power supply, simplifying setup with fewer cables and accessories, and making transport and operation easier.

The new Sky Panel S60 Pro can be seamlessly integrated into existing workflows and wireless setups with CRMX and Bluetooth for app-based control. It also features 5-pin DMX inputs and outputs for robust traditional control, as well as Ethernet inputs and outputs for newer studio installations.

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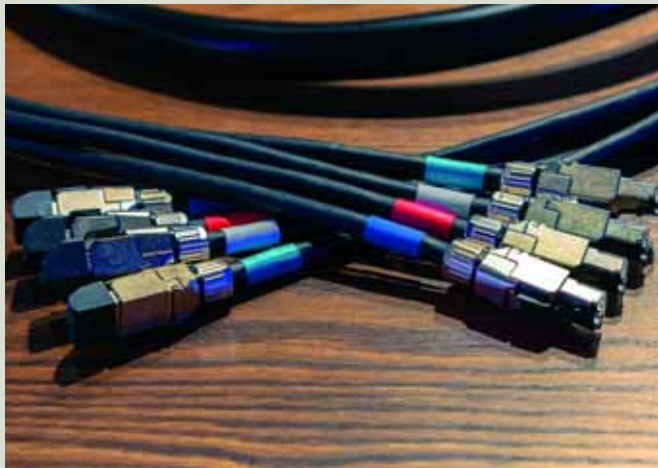
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Sommer Cable

Video-Patchkabel

The new Video-BNC patch cable SC-Vector Plus 0.8L/3.7DZ from Sommer Cable is flexible and robust. It features a double CU-braided shield, guaranteeing 100% coverage and optimal protection against external interference. The insulation consists of durable and low-loss cellular PE (3.7 mm) around a 0.7 mm inner conductor with 19 x 0.16 mm CU-strands, while the outer jacket with a 6.1 mm diameter is made from a notch-resistant, cold-flexible, heat- and UV-resistant PUR material. The patch cable is equipped with Neutrik Reartwist UHD-BNC connectors, designed for the transmission of high-resolution video signals. Thanks to their special isolator and contact pin design, these connectors ensure low return loss for 4K and 8K signals. Alternatively, the cable manufacturer offers a version with the reliable and compact Hicon-6G-BNC connectors, BNC0.8/3.7-6G, with hard-gold-plated pins and shielding housings to achieve the lowest skin effect and lossless transmission.



Cordial

CCAT konfektionierte Kabel CSE

Cordial offers a new, comprehensive range of Ethernet cables (bulk „CCAT“ and pre-assembled products „CSE“) specifically designed to meet the data transmission needs of forward-thinking, digital event technologies. The portfolio includes CAT cables from Category 5e to Category 6A with 500 MHz and up to Category 7A. Each of these cables is PoE (Power over Ethernet) capable, depending on the category, from PoE to PoE++. This means that networked devices can be powered through the Ethernet cables. The link performance of the new Cordial Ethernet cables extends up to 117 meters, depending on the category. For each typical application scenario, the corresponding connector combinations „RJ45 + RJ45“ and „EtherCon + EtherCon“ are available. The connectors come from renowned quality brands like Neutrik, Hirose, and Telegärtner. To offer the appropriate lengths for various distances, the products are available in lengths from 0.3 meters to 150 meters. Longer lengths are wound on reels from Schill.

TAF

Tower 05

The compact Tower 05 system from TAF makes transport, setup, and use straightforward: roll the base to the desired position, unfold the outriggers, and set up the HT34 truss. Thanks to the Quikklock connection system of HT34, setup is quick and easy. A welded sleeve block allows a four-way connection of truss segments, covering a wide range of applications, making the system versatile. The Tower 05 system offers a maximum lifting height of 6.5 m and a load capacity of up to 500 kg. New and improved features include steel feet with lateral rotation for better leveling on various surfaces, adjustable leg braces for increased stability, and a modified sleeve block for smooth rides. Eight additional holes (two on each side of the sleeve block) allow for easy accessory mounting. A chain hoist attachment point is located at the top. The Tower 05 is delivered with all components for immediate use.



Mott

Optimus

Mott Mobile Systems has introduced a new, height-adjustable FOH table called Optimus. The product was developed to meet the needs of event professionals and is a direct response to feedback from the industry during Prolight + Sound 2024. It was first presented at Letatcon. The table is based on the Optimus stage platform, already used in schools, kindergartens, and various institutions for lectures. With its lightweight design and ease of use, it has proven itself in event technology, particularly for smaller stages. Customers receive the requested height-adjustable version of the proven platform. The table measures 1.40 x 0.70 meters and weighs 18 kg, adjustable from 60 to 90 cm in height. With a stacking height of only 4 cm, it fits into almost any car.





*Ralph Lammann*  
MENSCHEN & PARLAMENT - 75 JAHRE DEMOKRATIE LEBENDIG · BERLIN 2024



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Meet **90** IBC **96** Festival of Light **100** Leatcon **104** Future Of  
Festivals **110** Avicii Experience **114** Hypar-Schale **118** Ole Red  
Las Vegas **124** Sun Princess **126** Rosa Sky Rooftop Bar **128**  
Rolling Stones **132** Adele **136** Ring des Nibelungen **150**  
Pink **156** Bruno Mars **168** Riad-Jubiläum **174** Blink-182 **178**  
Bushido **180** Megan Thee Stallion **184** Metallica **186** Electric  
Love Festival **188** Jan Delay **190** Black Sabbath Ballet **192**  
Dua Lipa **196** Green Day **198**

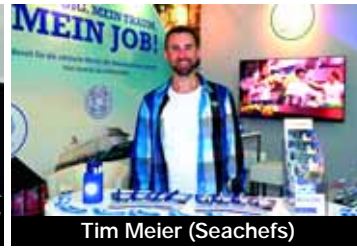




Mario Tomazetich (MT-Electronic)



Isabelle Weide, Harald Prieß (BiW), Jörn Nettingsmeier (VDT)



Tim Meier (Seachefs)



Lorenz Sanhüter, Peter Zahn (Steinigke)



Peter Klotz (Klotz AIS), Robert Peham (PKE)



Raphael Suarez, Max Schmidt, Frank Mosch, Martin Braun (Lawo)



Licht Produktiv-Team



ASM-Team



Gerhardt Göpfrich (Iigus)



Vectorworks-Team



Thomas Kainz-Kohl (Preworks), Michael Nothelfer (JB Lighting)



Robert Peham, Julia Kranister, Matthias Koppensteiner, Christian Ernst, Johannes Schmidmayr, Alexander Hauschka (PKE)



Christian Geyer, Bernd Bachhuber (CGS)



Meet-Opening: Larry Busch, Alfred Rieger, Claudia Panian, Sonja Blackwell, Martin Kollin, Othmar Stoss, Daniel Serafin



Waagner-Biro



Robert Peham (PKE), Walter Kottke (BWKI)



Martin Kollin, Othmar Stoss (OETHG)



Hoac-Team



Moses Marquis, Stefan Thomsen, Jasper Holz (Industrial Arts)



Audio-Technica-Stand



dB Technologies-Team



Marco Kuhnmünch (K+F), Tom Ammermann (New Audio Tech)



Eugen Grünewald (Purelink), Andreas Hammerschmid (Atec Pro), Martin Lemke (Ametek), Michael Trescher (Purelink), Karolina Mankiewicz (Edbak)



Tobias Hesse (W+W), Kay Rothe, Alexander Kissler (Salzbrenner)



Manfred Prochazka (Atec Pro), Christian Da Silva Santos (Blaze)



Stefan Rast (Voice Acoustic)



Markus Zimehl, Jürgen Jost, Uli Golka (Adam Hall)



RTS-Team



Austrian Audio-Team



Katharina Zehender, Jochen Kaluza (Livecom)



Arved Hammerstädt (Cast, links)



Erich Kulicska, Lukas Kunze (E+M)





## A complete success

Already in advance, an increase in visitors was anticipated, which was then surpassed: Over 1,600 visitors came together at „Meet 2024“ in Vienna.

The event, which took place in Hall D of the Messe Wien at the beginning of November, lived up to its name and was intensively used for exchanging ideas, networking, and experiencing the latest trends in the industry. The unanimous conclusion from over 90 exhibitors, the organizer, and the audience: Meet has once again established itself as an indispensable industry gathering point.

The Austrian Theater Technology Society (OETHG) as the organizer was extremely pleased. „We are very surprised by the great influx of exhibitors and are thrilled that Meet has reached this dimension“, says Martin Kollin, Managing Director of OETHG. In fact, the decision to hold the event in the larger Hall D of Messe Wien was an important step to meet the increased demand. „A larger exhibition could not have been accommodated at the Congress Center“, Kollin adds.

„The exhibition exceeded our expectations. The organization ran smoothly, the atmosphere was inspiring, and there were many lively discussions and exciting topics. The networking aspect was particularly highlighted: new contacts were made, existing partnerships were strengthened, and professional exchange was at the forefront. Whether exhibitors, speakers, or guests - all participants contributed to making Meet a platform for innovation, creativity, and collaboration.“

Another highlight was the impressive exhibitions and expert discussions that emphasized the diversity and dynamics of the industry. Like many other trade shows that returned „in person“ after the pandemic, Meet was also a striking testament to how important personal encounters and professional exchanges on-site are for the industry. The next Meet will take place in 2026.

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Vorträge





## Huss opens demo center

The Huss Expo 2024 set a new visitor record: around 400 industry professionals flocked to the in-house exhibition. A special highlight was the opening of the Huss Sound Demo Center.

The trade show day, featuring nearly 100 exhibiting brands, was the anticipated industry gathering in southern Germany. The visitors themselves were also impressed by the family-friendly atmosphere. Andreas Unterrainer from S.L.C. Event Technology shared his excitement: „We’ve been customers for almost 20 years and this is our first time at the Huss Expo. What particularly surprised me was the personal interaction with the manufacturers – much more personal than at comparable trade shows.“

A standout highlight of this year’s exhibition was the grand opening of the Huss Sound Demo Center. Attendees had the unique opportunity to experience PA and line array systems in a professional environment live and directly compare solutions from various manufacturers. This new offering received overwhelmingly positive feedback and was enthusiastically embraced by the visitors.

The raffle of attractive prizes and a lively after-show party rounded off the event, ensuring a successful conclusion to the trade show day.





# Winners from around the world

The winners of the 19th SAE Awards have been announced. The trophies were awarded in 15 categories and went to teams and individuals from Australia, Germany, Greece, the UK, Mexico, Austria, and Switzerland.



The SAE Awards were presented for the 19th time in 2024. Each year, the SAE Institute honors the best media productions by students and alumni from around the world. As an international showcase, the awards have become an important career stepping stone for the winners. The awards celebrate both professional achievements by SAE alumni and outstanding semester and thesis projects by students. This year, 274 music, film, game, VFX, and web productions submitted by media professionals from 24 different SAE locations made it to the final selection by the internationally staffed jury.

The award ceremony took place at the end of last year in Frankfurt am Main. Shortly after, celebrations were held at the SAE Institute's more than 50 locations worldwide, and the recording of the gala was broadcast for the first time. A particularly goosebump-inducing moment was created by Frieda Bañuelos Avilés from SAE Institute Mexico-City. The singer attended the award ceremony at the Frankfurt Gibson Club and performed her song „<3 Espinado“ live at the event.

## The winners at a glance:

### SAE Alumni Awards

**Best Music Production:** „I want my Heart back“ by Lukas Wehrle, SAE Institute Stuttgart (D)

**Best Audio Production (Non Music):** „Hope and Glory“ by Saro Sahihi, SAE Institute Stuttgart (D)

**Best Film & TV Production:** „Silencia Aislado“ by Vincente Garibay Lijanova, SAE Institute Mexico-City (MEX)

**Best VFX & 3D Art Production:** „Trinket“ by Alisha Doherty Hough, SAE Institute Byron Bay (AUS)

**Best Game Production:** „Somnoneer“ by Magnus Dorra, SAE Institute Stuttgart (D)

**Best Web & Tech Production:** „Final Spark's Neuroplatform Demo“ von Daniel Burger, SAE Institute Zurich (CH)

### SAE Student Awards

#### Best Music Project 1:

„Days Change“ by Noah Dahlke, SAE Institute Köln (D)

#### Best Music Project 2:

„<3 Espinado“ by Frieda Bañuelos Avilés, SAE Institute Mexico-City (MEX)

#### Best Audio Project (Non Music):

„Trinket“ by Jarmila Sustrova, SAE Institute Byron Bay (AUS)

#### Best Film & TV Project:

„Chasing the Breeze“ by Noah Malin, SAE Institute Byron Bay (AUS)

#### Best Content Creation Project:

„A Life in War“ by Sebastian Leon Schreiber, SAE Institute Wien (A)

#### Best VFX & 3D Art Project:

„Project Pizzadou“ by Pranav Patil, SAE Institute Sydney (AUS)

#### Best Game Programming Project:

„Colorless Odyssey“ by Alexis Haldy, SAE Institute Genf (CH)

#### Best Game Art Project:

„Aphelion“ by Aggeliki Katopodi, SAE Institute Athen (GR)

#### Best Music & Media Business Project:

„Emy“ by Eme Ann-Marie Tuch, SAE Institute Hamburg (D)

#### Best Web & Tech Project:

„Stick to it“ by Hamed Musari, SAE Institute London (GB)

The SAE Institute, founded in 1976 in Australia, is a globally operating private educational institution for careers in the creative and media industries. The SAE Institute sees itself as an internationally connected creative platform that serves as the launchpad for successful careers. Among SAE alumni are numerous Oscar and Grammy winners. The SAE Institute network spans over 20 countries across six continents with more than 50 institutes. In Germany, it has locations in Berlin, Bochum, Frankfurt, Hamburg, Hannover, Cologne, Leipzig, Munich, Nuremberg, and Stuttgart.





Nick Rashby (AJA)



Roe Visual-Team



Thomas Peter (Schill)



Helmut Seidl, Verena Krieg (RTS)



Craig Gambell (Arri)



Till Sadlowski (Instagrid), Peter



Moovit Team, hinten (v.l.): Wolfgang Felix, Vural Bostanci, Anne Dennert, Hans Douma, Jan Fröhling; vorne (v.l.): Julia von Cieslik, Kerstin Grafov, Artur Grafov, Tobias Trumpfheller, Lucas Ramiro Schiffer, Rafael Hutter



Neha Rushtom, Lotta Schiefer (Brompton)



Stephanie Schmidt (Sennheiser), Ckaudia Kwiecinski (ET.Now)



Jesper Soerensen (Stera), Axel Menke (Kaiser)



Torben Reinert, Michel Huizing (Sommer Cable)



Audio-Technica-Team



Oliver Dier (Brompton), Marius Kuschmierz (Absen)



Erik Baum, Marina Prak (Roe Visual)



Yann Sellac (Blackmagic Design)



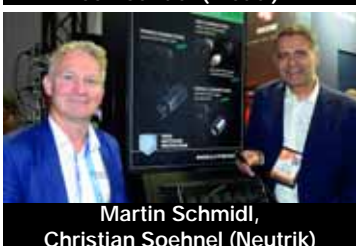
Marc Schneider, Jan Sander (Riedel)



Avid-Team



Dirk Born, Stefan Ringer (Tascam)



Martin Schmidl, Christian Soehnel (Neutrik)



Lee Romney (Arri)



# AI at the center

More than 45,000 visitors from 170 countries gathered in Amsterdam at the IBC to discover innovations, discuss trends, and network. Over 1,350 exhibitors from the global media, entertainment, and technology industries showcased the latest advancements.

At the International Broadcast Convention (IBC) in September, 45,085 visitors from 170 countries came together at RAI Amsterdam. The global media, entertainment, and technology industries used the event to network, present and discover innovations, tackle current challenges, and explore new opportunities. Compared to the previous year, the fair attracted over 2,000 additional visitors.

More than 1,350 exhibitors - 100 more than in 2023 - presented their products on an exhibition area of 46,000 square meters (44,500 square meters the previous year). At the lively exhibition grounds and in well-attended theaters, the IBC addressed key trends and topics such as combating misinformation and fake news. New features, like the AI Technology Zone and the IBC Talent Programme, were also introduced.

„In a year marked by events like the Olympic Games and national elections, there was an extremely positive mood at IBC. This year's fair focused on in-demand topics such as AI's leap from theory to practice, combating misinformation in the news sector, and promoting talent and diversity in media, entertainment, and technology“, says Michael Crimp, CEO of IBC.

Other key topics included sustainability, 5G, cloud, eSports, immersive experiences, Over-the-Top (OTT) and streaming, Ad Tech, the meta-verse, edge computing, and connected technologies. Many of these topics were discussed during the three-day IBC conference in the RAI au-

ditorium complex, in various exhibition theaters, and at exhibitor booths.

Some of the central topics of the fair were also the focus of the IBC Accelerator Media Innovation Program, which featured a premiere this year: the AI Media Production Lab, where specific AI concepts were developed. One of the hottest Accelerator projects - also a topic at the IBC conference - was „Design Your Weapons in the Fight Against Disinformation“. The goal was to develop an industry-wide understanding of the challenges and abuses faced by all media organizations today in providing trustworthy news and information to the public.

The new AI Technology Zone attracted numerous visitors who had the opportunity to engage with industry leaders about practical applications such as automated video editing, music audio separation, content provenance tracking, and fast, secure cloud storage. On the stage platform, AI pioneers shared insights into how this technology will shape the future and already transform media in areas like discoverability, news verification, and immersive experiences.

The free IBC Talent Programme, held for the first time, featured engaged discussions on fostering the next generation of the industry, recruitment challenges, and the importance of diverse perspectives for innovation. The program was launched by the World Skills Café, which took place at RAI the day before the fair. IBC2025 will be held from September 12-15.



## One Stop Solution

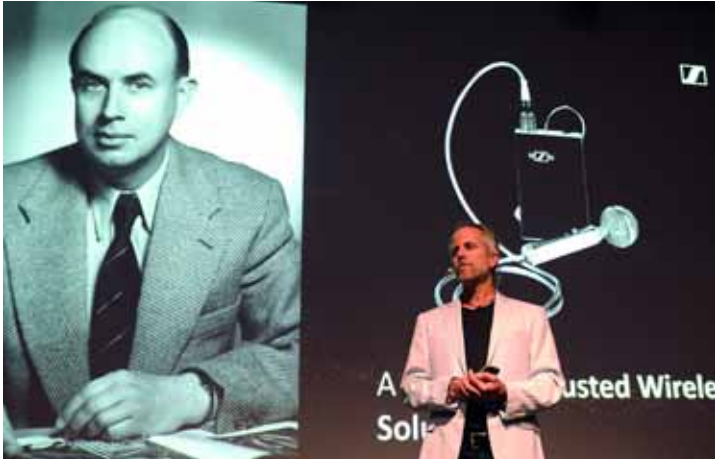
Audio-Technicas Intention seit der Firmengründung 1962 in Japan ist es, Menschen durch anspruchsvollen Klang auf bedeutsame Weise miteinander zu verbinden. Als Teil dieses Strebens arbeiten wir mit anderen führenden Herstellern zusammen, um mit unserer One Stop Solution Ihre Anlaufstelle für die komplette Signalkette zu sein. Erfahren Sie mehr über die One Stop Solution in unserer Broschüre, verwenden Sie hierzu den QR-Code.



Weitere Informationen unter  
[www.audio-technica.com](http://www.audio-technica.com)







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Lawo





Siegessäule





Berliner Dom



## Visitor record

At the 20th Festival of Lights in Berlin, more than 3.5 million people celebrated peacefully, joyfully, and together for 10 nights, celebrating freedom.

The 20th Festival of Lights, held from October 4 to 13, 2024, in Berlin, had more visitors than in all 19 previous years. According to the organizers, more than 3.5 million people were out and about for ten nights to experience the exceptionally diverse light art at numerous landmarks, monuments, and special buildings during this anniversary year. Last year, the figure was around 3 million. „Even the cold, rainy weather on some days didn't stop visitors from flocking to the festival and enjoying the emotional imagery and shows. This makes us very happy and a little proud“, says Birgit Zander, organizer and head of the Festival of Lights.

The most emotional moment for many visitors was likely the artistically staged „Trabi“ on the Brandenburg Gate, the car that shaped life in the former GDR for decades. „When the Trabi powerfully broke through an apparently insurmountable wall on the most famous landmark in the capital, many people had tears in their eyes. Memories of the fall of the Berlin Wall 35 years ago were awakened. These people were so moved that they exchanged personal experiences related to the fall of the wall and talked about their lives in freedom. In such moments, we know that all the effort around the festival is worth it. The vi-



Brandenburger Tor





Fernsehturm





Charlottenburg



Unity

sible joy of the visitors is the greatest compliment for our work“, Zander adds.

At 48 special locations and places, more than 100 artworks were on display during this year’s festival. Over 50 artists from 20 countries created a colorful, diverse, and often inspiring program. In this way, the German capital became the largest open-air gallery in Europe.

Berlin’s Mayor Kai Wegner, who was the patron of the 2024 Festival of Lights, explicitly praised the annual efforts of the festival team for this unique cultural highlight in his address: „My congratulations go here to everyone who is behind this extraordinary festival: Those who have ensured that it has become one of the most popular and well-known light art festivals in the world over the past 19 editions and those who continue to

write this success story - especially the organizers, their partners, and all the participating artists.“

The Festival of Lights 2024 was made possible by Lego, Potsdamer Platz, SAP, Armani Beauty, Renault, Sparda-Bank Berlin, the State of Berlin with the „Hauptstadt machen“ campaign, WBM with the Nikolai- viertel, the Humboldt Forum, Wolt, Kleinanzeigen, Kiddinx with Benjamin Blümchen, the Cupra City Garage Berlin, Estée Lauder Companies, the Berlin Chamber of Crafts, the Caritas Association for the Archdiocese of Berlin, WWF Germany, Toscana Promozione Turistica, VBB with the i2030 project, the Berlin University Alliance, the Ukrainian Institute in Germany, Commerz Real, Visit Berlin, Help – Hilfe zur Selbsthilfe, the Björn Schulz Foundation, Illuseum Berlin, TV-Turm Alexanderplatz, the European Parliament, Fischer & Lustig, Beisheim Holding with the Ritz-Carlton & Marriott Hotels Berlin, and the Metropolitan Chapter of St. Hedwig’s Cathedral.



Ritz Carlton



DUNDU



Humboldt Forum



St. Hedwigs Kathedrale





Christian Da Silva Santos,  
Shamaila Ahmad (Blaze)



Nicolai Hocke,  
Oliver Ohrndorf (NIYU)



Monika Prager (Prolight+Sound),  
Duc Nguyen (Leatcon)



Lars Moecke (ICT)



Lukas Schwab,  
Gaby van der Blom (Instagrid)



Dominik Rieskamp (Hof),  
Michael Timmer (BT Innotec)



Rosa Stunde (v.l.): Maren  
Neumeier, Solveig Busler,  
Michelle Gräse, Claudia Drewitz,  
Jana Kintrup, Tabea Bantes



Tim Franke, Korbinian Lauxen,  
Martin Hubner (Cordial)



Nikos Böttcher (Chainmaster)



Robe-Team



Alexander Köhnen,  
Sebastian Barwich (Multisenses)



Uwe Radke, Leo Mergel  
(Eventworx)



Marc Libreht (Elation),  
Marc Petzold (LMP)



Axel Heinlein,  
Michael Herweg (Roxx)



Florian Buhr,  
Benjamin Schulenkorf (Protones)



Petra Selbertinger, Marcel Heß,  
Ardita Miftari (Canon)



Thomas Adt (Adt Consulting),  
Christopher Ambrosius (Epicto)



Holger Hensel, Danny Krichel,  
Sebastian Mober, Rob Lang,  
Daniel Danzer (ADJ)



Simon Claussen, Julia Schöning,  
Sven + Dirk Schlotthauer  
(Crewbrain)



Lukas Falgenhauer, Thilo Neiss  
(Analog Way)



Christopher Bauder (Whitevoid),  
Solveig Busler (Schnickschnack)



Karl-Heinz Jagusch (Sound +  
Light), Helge Leinemann (VPLT)



Michael Schwarzer, Sebastian  
Bähr, Ton Groen (Coda)



Harold Woolderink,  
Marcel Termeer,  
André Nijen Twilhaar (Beamz)



Marcus Pohl (ISDV), Naomi  
Schilling, Lea Pelka (VDMV)



Lars Baumhauer, Alexander  
Rexforth, Tjarden Kränmer,  
Frank Alofs (Chauvet)



Dominik Schaaf, Michael Migo  
Platz, Silke Hernadi,  
Marko Fußholler (d+b)



Claudia Kwiecinski (ET.Now),  
Daniel Imiola (Global Truss)



Maxx Kaiser (Kaiser, Mitte)



Sebastian Huber, Dawid Somlo,  
Angela Forica, Karel Noon  
(HK Audio)



Christian Richter,  
Joshua Prinzhorn (Unilumin)



Jörg Reimund Sieper,  
Jule Braungardt,  
Michael Nothelfer (JB Lightimg)





## An indispensable meeting point

Leatcon 24 has once again achieved great success: With over 6,500 participants, more than 220 exhibitors, and over 300 brands, this year's event was the largest of its kind to date. Thanks to the growth in visitors and the excellent program, the Networking Convention has established itself as an indispensable meeting point for the live and entertainment industry.

The event offered industry professionals in Hamburg an ideal platform for exchange, further education, and networking. The program of Leatcon was impressive: With renowned speakers, exciting discussions, and hands-on workshops, there was something for everyone. Whether future-oriented technologies or the latest developments in event technology - the extensive program left little to be desired.

This year, the AVcon, the accompanying special area at Leatcon, celebrated its premiere. Specifically tailored to the fixed installation market and the Pro-AV industry, AVcon offered a wide range of AV/IT system integration topics. Visitors had the chance to discover innovative products and solutions and further their education through practical presentations. The successful premiere makes AVcon another important component of Leatcon. The studio scene once again delighted with inspiring and hands-on masterclasses. Whether immersive audio or creative mixing, participants gained comprehensive insights into audio production and exchanged ideas with industry experts.

Leatcon has once again developed consistently: This year, the focus was more on interactive offerings. In the HDR Experience Zone, participants could experience the effects of HDR/WCG on specific workflows live, while the expanded training area with practical console training sessions attracted considerable interest.

After this successful year, the organizers look forward to 2025 with high expectations. Next year, Leatcon will move to halls A1 and A4 at Messe Hamburg, offering even more space for exhibitors and visitors across two halls. The educational sector will also be significantly expanded to cover the full breadth of the industry.

„We must grow and offer more potential for the industry with an expanded program and new focal points. We will focus more on the synergies between ProAV and event technology“, emphasizes Duc Nguyen, Director of Leatcon, and, despite some critical voices fearing the loss of the networking character, remains confident: „It will work out!“

Leatcon 2025 will take place from October 14 to 16, 2025, in the A halls of Messe Hamburg. However, before that, many industry players are likely to meet at the smaller Leat X, which will be held on March 19-20, 2025, at the Ofenwerk in Nuremberg.

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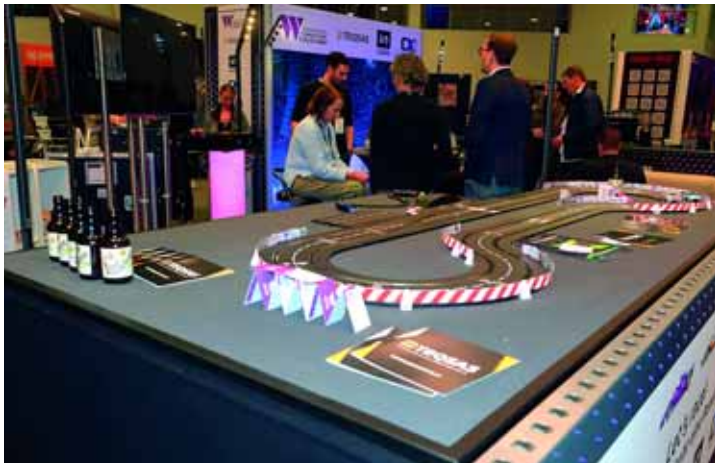
Ein Airstream im Gewand von Avolites



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Marcel Courth (Leatcon), Julian von den Stemmen (Robe), Christopher Bauder (Whitevoid)



Martin Respondek (Mott)



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Rosa Stunde



Sven Kubin (VBC)







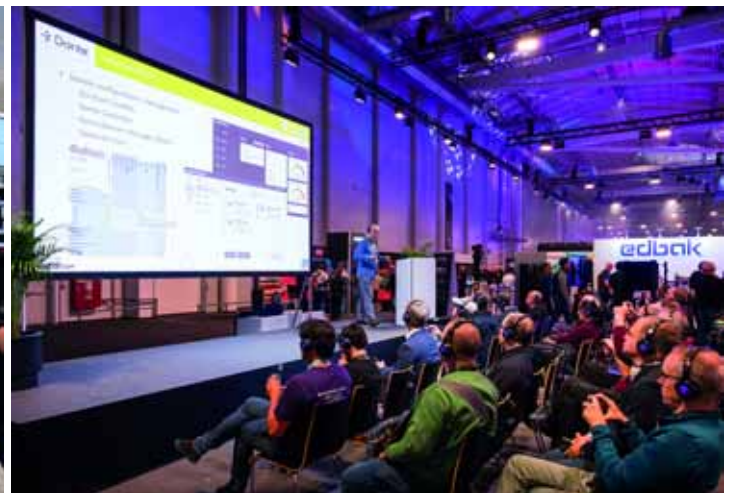
Analog Way



MagicQ



Rosa Stunde







## The Sound Experts

Last year, more than fifty renowned sound engineers from across Europe took part in the „Sennheiser Sound Expert“ seminar in Düsseldorf. The two-day event offered numerous workshops, with a particular focus on professional digital wireless technology. A specially designed „Experience Room“ gave the engineers the opportunity to listen to WMAS prototypes and create their own in-ear mixes using this new technology.

„The Sennheiser team was thrilled to welcome experts from across the EMEA region once again“, says Chris Kopp, Project Manager of the Sound Expert Seminar. „Providing a platform for engineers and producers to network, exchange ideas, and learn about the latest industry developments was an essential part of this seminar. However, what made the

seminar truly special were our guests, whose expertise and enthusiasm made the event memorable.“ Members of Sennheiser’s Application Engineering team were on-site to lead the wireless workshops, share tips and tricks, and offer practical sessions with WMAS development prototypes. By using the bidirectional prototypes exclusively as IEMs, the engineers







had the chance to experience the characteristics of a digital low-latency IEM and make multi-track recordings of their own in-ear mixes on digital consoles, allowing them to directly compare these with analog IEMs.

Immersive sound and binaural audio examples were at the heart of Lasse Nipkow's psychoacoustic workshop. Nipkow has been researching applied psychoacoustics since 2010 and has created 3D recordings of classical and dance music, as well as sound design for animated films. The roots of many national and international bands, especially from the punk and electronic scenes, lie in Düsseldorf. During a special city tour - „The Sound of Düsseldorf“ - participants learned more about Die Toten Hosen, DAF, and Kraftwerk, and listened to audio examples from these bands.

The feedback from participants after two eventful days was overwhelmingly positive: „I was particularly excited to finally experience the long-awaited new WMAS digital wireless system - I could finally hear

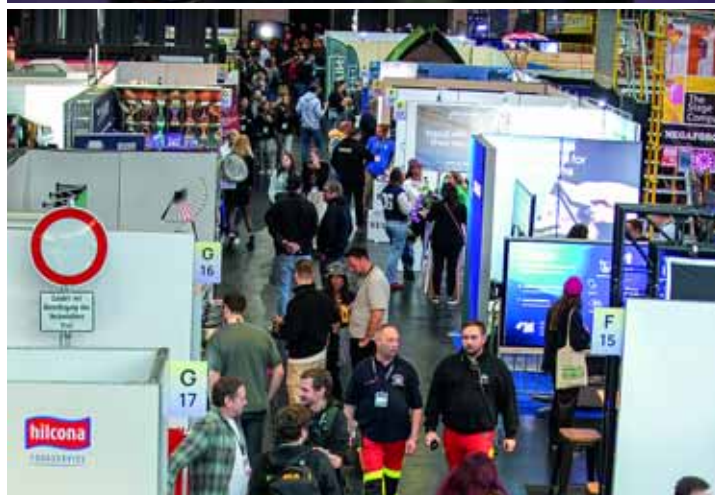
the bidirectional bodypacks and was impressed by their sound quality. Additionally, there were exciting and entertaining talks and many nice conversations“, says Monitor Engineer Thomas Hofer about his experience.

„The exchange of ideas with respected colleagues from across the industry was very rewarding. I would definitely recommend anyone invited by Sennheiser to attend“, says Phil Wright, Sound Designer and Mix Engineer.

„We're essentially a very small group of people in the professional audio world of engineers and designers. We should meet and exchange ideas, not only with manufacturers but also among ourselves. I've learned a lot both personally and professionally here“, says Richard Brooker, Sound Designer/Engineer. Chris Parker, Patchwork London, agrees: „It was very impressive and exciting to experience the next generation of RF solutions for live productions.“











## International Platform

The „Future of Festivals 2024“ in Arena Berlin has established itself as an indispensable platform for the festival industry in Europe. With a record number of over 7,000 participants from more than 30 countries, the event impressively demonstrated its international significance.

The combination of innovation, knowledge exchange, networking, and the trade show attracted both well-known industry pioneers and new players from the entire event landscape. 290 exhibitors from Germany, Europe, and around the world showcased the latest products, technologies, and services for the festival industry. Over 80 high-profile panels, keynotes, and workshops with 180 speakers across four stages addressed topics such as sustainability, digitalization, talent acquisition, and logistical challenges.

One panel talk that received particularly high attention was „Learn From Each Other US & EU Festivals“, where Fruzsina Szép (Goodlive/Lollapalooza Berlin, Germany), Jennifer Yacoubian (Executive Vice President, Coachella, USA), Eugénie Encalard (COO, New Orleans Jazz & Heritage Festival, USA), and Marta Pallarès (Head of Press, Primavera Sound, Spain) discussed how festivals can drive societal change and exchange best practices to foster closer collaboration across continents and advance the global festival industry.

The trade show demonstrated how international collaboration brings fresh impulses to the festival industry. Together with the Event Production Show, the UK Pavilion was organized, offering six innovative companies from the UK a platform to showcase their products and services. Through the „Pitch Your Idea - New Festival Start-Ups“ format, two start-ups were brought to the event and eventually to the main stage through cooperation with the Dutch project Innofest, where they presented their ideas to an international audience. Additionally, through collaboration with the US festival conference Fest Forums, a promising young company from the USA was invited to Berlin. This exchange emphasizes the role of the Future of Festivals as a hub for innovation and as a con-

necting element between different markets and players.

The award for innovative and sustainable work in the festival sector was presented during the event. In two categories, visitors had the opportunity to vote for their favorites. In the Service/Company category, „Crowd Cushion“ was awarded. The company has developed a smart solution in which cushions with sensors ensure greater safety at festivals. In the Festivals category, the award, in the form of a bonsai tree, went to „Jamel rockt den Förster“. For years, this festival has been making a strong statement for democracy and tolerance in its region, which was recognized with this award.

The local festival scene also used the platform to network. In collaboration with the festival association Impuls Brandenburg, a roundtable „Help for Festivals“ was organized. The goal was to exchange ideas and develop concepts to strengthen the festival industry together and navigate through these challenging times. „The event shows how important it is right now for the different players to work together to find answers to future questions, such as talent acquisition and sustainability“, says CEO Robert Stolt. „As a leading trade fair, we want to set a good example - and we did that very well this year. But we're not resting on our laurels and are already planning exciting developments for the new location 'Station-Berlin'. The move to Station-Berlin not only gives us more space but also offers a fresh perspective. There will be dedicated entry areas for a clearer structure and better access. In addition, Station-Berlin offers an industrial atmosphere that perfectly matches the innovative setups of the festival industry.“

The Future of Festivals 2025 will take place on November 27-28, 2025.

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## Optimal studio flexibility

The independent Slovak television broadcaster TV Markíza is a popular TV channel. Recently, a Leyard TVF video wall was installed in the news studio, and Leyard Carbon-Light CLI and CLI Flex displays were installed in the morning show studio.

The LED displays with a small pixel pitch provide functionality and flexibility to the 24-hour multipurpose studios, enabling TV Markíza to effortlessly switch between news, weather, or morning chat show layouts.

The collaboration between Leyard and the broadcaster dates back to 2017, when three video walls from the Leyard TVH series were installed in the news studio. Leyard was then selected as the supplier for the studio expansion in 2019, but the project was delayed due to the pandemic, and the installation of the Good Morning Studio was only completed at the end of 2020.

Discussions about renovating the news studio began in September 2022. Due to the long-standing collaboration, TV Markíza once again turned to Leyard to work together with the architect to develop a solution. „Another factor was that the European production facility and headquarters are located in Slovakia“, says Jaroslav Holota, „which gives us the flexibility to receive local support, and there’s no language barrier. That’s a huge advantage.“ Leyard’s production site ensures high-quality standards and also allowed for the easy execution of cost-efficient testing. This proved to be an invaluable benefit, as the TV Markíza team

was able to familiarize themselves with Leyard’s TVF series prior to installation.

„Originally, the project was supposed to be completed later this year, but due to two upcoming elections and other events, it was brought forward“, Holota reports. „The installation of the new TVF wall was completed last summer when the studio was less busy.“

Thanks to the small pixel pitch, front-serviceability, and the creative, stackable design that eliminates the need for cabinet-to-cabinet cabling, the TVF series is a great solution for broadcast applications. The easy front access also reduces space requirements for the displays, while the low heat emission ensures a comfortable working environment for presenters and guests.

In front of the camera, the Leyard TVF series delivers excellent performance with low latency combined with high refresh rates across the entire product range. With redundant power supply and control systems, the TVF modules are ideal for mission-critical live broadcasts. The gentle curve of the wall in the news studio is made possible by the stackable fra-





me construction of the modules, providing a perfect backdrop for a wide range of programs.

The concept was designed by architect Jaroslav Holota and successfully implemented with the support of Leyard Europe, thanks to effective

communication among all involved parties. The modernized studios enable TV Markíza to offer a rich program of news and journalistic content. The brightness of the screens and the appearance on camera have been improved, ensuring that TV Markíza will continue to stay at the forefront of broadcast quality.

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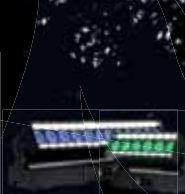
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## A museum for Avicii

„Avicii Experience“ is a tribute museum dedicated to Tim „Avicii“ Bergling in Stockholm – a place to honor one of the greatest DJs, remixers, and music producers in the EDM world.

Visitors to the museum follow Bergling’s journey from a withdrawn music enthusiast to a superstar - from the childhood bedroom where it all began, to the studio in Los Angeles, where the greatest hits were created. The exhibition includes never-before-seen photos and videos, as well as released and unreleased music. Many of Bergling’s original personal

items are on display. The museum consists of 27 stations, where the audience gets to know Tim Bergling through audio, video, and interactive experiences. Visitors can listen to stories with headphones, create their own versions of Bergling’s music via touchscreens, and experience both beautiful and challenging moments in Bergling’s biography.







The installed technology includes 82 square meters of the high-resolution 1.6 mm LED wall „The Wall“ IWA016 by Samsung, the first version ever built in Sweden. Additionally, a 24-inch Elo Touch LCD, AMS155 subwoofers by Bose, Bright Sign 4K media players, Watchpax-60 media servers, and a Crestron control system that controls all screens via an iPad were installed.

A ten-person team from Creative Technology worked over two thousand hours on project management, installation, and programming. The „Avicii Experience“ is part of Space, a digital cultural center in the heart of Stockholm - a physical meeting point for the digital generation, where some of the key elements of digital culture - ga-

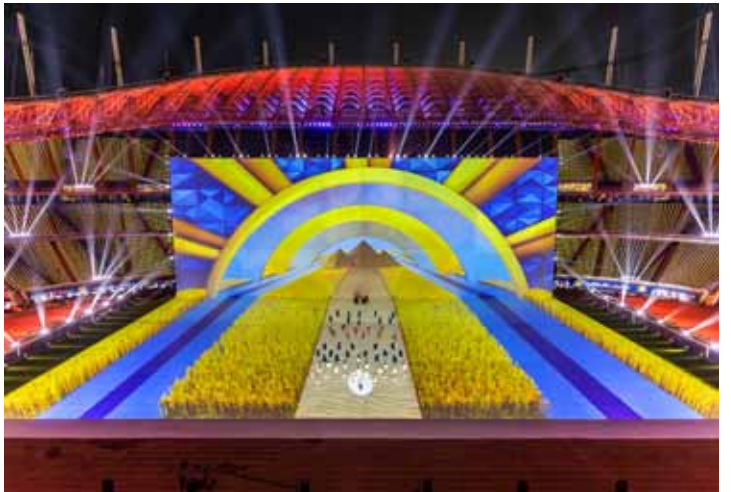
ming, music, content creation, and digital know-how - come together under one roof.

Tim Bergling, alias Avicii, has sold nearly 100 million records to date. His biggest hits include „Levels“, „Wake Me Up“, and „Hey Brother“. He struggled with health issues, predominantly mental health problems, throughout his life. In 2016, he announced that he would no longer perform live but would continue to work musically in the studio. After years of drug and alcohol abuse, he turned to meditation.

During a holiday in Oman, he tragically passed away in 2018 at the age of just 28 by suicide.











## In the Olympic City

64 Titan 37000 WUXGA laser projectors from Digital Projection were at the center of a 3D projection mapping show that took place at the newly built stadium in the Olympic city at the end of 2024. The stadium is located 50 kilometers east of Cairo and, with 93,940 seats, is the largest sports arena in Egypt and the second largest in Africa.

For the show, Hilights Group installed 3D projection technology that integrated all the walls and floor areas of the stadium into a cohesive visual representation. „Through meticulous planning and state-of-the-art technology, immersive graphics were created for a 3D experience like never seen before in this region“, says Yara Mahran, Senior Digital Marketing Specialist at Hilights Group.

The project was designed as an engaging, unforgettable experience - a transformation of the space through high-resolution projection mapping on vast surfaces. Hilights Group was tasked with creating a visually stunning environment. The team delivered a custom concept utilizing 64 high-performance laser projectors from Digital Projection.

„We wanted to expand the possibilities of visual immersion in a stadium environment. By using high-resolution graphics with great brightness, we transformed the space and created an experience that captivated our audience from every imaginable angle“, explains Mahran. She adds that the team’s mission set a new standard for immersive entertainment, showcasing new opportunities in the field of event technology.

To achieve a true 3D effect, the Hilights Group team used a 90-degree projection technique on an area of more than 12,000 square meters and chose the 64 Titan 37000 WUXGA laser projectors from Digital Projection due to their high brightness and precision. The projectors were carefully aligned to achieve a graduated depth effect, says Mahran: „By integrating custom 3D content and synchronized animations, the graphics

seemed to leap out from the surfaces in the stadium. That was exactly the effect we wanted.“

The Titan projectors were selected not only for their precision but also for their reliability. A robust and precise laser projector was needed for this massive „screen“ to produce high-resolution graphics across the vast surfaces of the stadium. „The high brightness of the projectors was crucial in achieving the required high lux values on the floor and wall surfaces and creating a vibrant, impactful visual effect“, says Mahran. The Titan Laser 37000 WUXGA is a bright and powerful laser projector with 3 chips in a relatively compact housing, ideal for demanding and complex applications in large venues where bright, razor-sharp images are essential.

The laser projectors were complemented by ten Dataton Watchpax 60 media servers, the Olympic Pixel Manager with 20,000 pixels, and lighting fixtures from Varilite and Robert Juliat. The technical team placed the laser projectors strategically at various corners of the stadium to optimize coverage and projection distance, ensuring a consistent resolution of 10 mm per pixel. As a result, the visuals were seamlessly projected onto the floors and walls of the football stadium - with a brightness of 300 lux per square meter.

Custom animations and colorful graphics, adapted to the stadium’s architectural features, were played by Armoa Studios. For Hilights Group, it was crucial to perfectly align the graphics with the technical layout to create a fully immersive experience that would keep the stadium in awe.









## Legendary concrete shell

The restored Hyparschale (hypar shell) in Magdeburg has recently unfolded its full potential as a cultural center and architectural landmark. ADA Acoustics & Media Consultants optimized the acoustics of the historical shell structure by Ulrich Müther and transformed it into a versatile event venue.

The Hyparschale Magdeburg is one of the largest concrete shell constructions of its kind and one of only 50 remaining shell buildings designed by the civil engineer Ulrich Müther (1934-2007). The project began in 1969 and was opened in 1974 as a cultural facility in the former GDR. However, after the reunification, the building was no longer used and was closed in 1997 due to concerns about the stability of the roof. In 2017, it was decided to restore the building, and a team of GMP architects (Gerkan, Marg & Partner), led by project managers Christian Hellmund, Sophie von Mansberg, and Ursula Köper, was tasked with overseeing the restoration and transforming the Hyparschale in Magdeburg into a functional multi-purpose facility for the public. ADA Acoustics & Media Consultants (ADA-AMC), a company of WSDG, was entrusted with the acoustics design of the space.

Tobias Behrens from ADA-AMC began talks and site visits in 2017. A year later, the project was awarded, and work on computer modeling and a study of the room and building acoustics could begin. The scope of the project involved controlling the sound field not only for the main volume of 17,000 m<sup>3</sup> but also for the newly constructed cubes, which Behrens and his colleague Jörn Hoffmeier oversaw. Electroacoustic design was also involved, as well as acoustic shielding of machine noises in the room, such as ventilation systems.

The term „Hyparschale“ was coined by Müther to describe the hyperbolic parabolic curves that characterize the design of many of

his buildings. The limitations of contemporary building techniques and materials at the time of construction meant that the Hyparschale Magdeburg did not fully live up to Müther's original vision. The impressive light band of the straight-line skylights was blocked when leaks caused the windows to be covered with roofing material. Unfortunately, the penetrating water continued to damage the internal structures of the concrete roof, and within 20 years, the Hyparschale had become unsafe for public use.

The building offers a remarkable sight on the banks of the Elbe and is highly appreciated by the local community. When the demolition plan was announced, the community, including a group of architects, fought for the preservation of the building. The authorities in Magdeburg, the state capital of Saxony-Anhalt, were receptive, and when no private investors could be found, they decided to fund the project themselves. The restoration process would not be an easy task, as the size and shape of the building's roof and the vast open construction meant that it would be a challenge to make the building vibrant, versatile, and acoustically functional, as Behrens explains.

„The building's structure was remarkably robust, even though it hadn't been used since the 1990s“, he says. „The entire space has a volume of 20,000 cubic meters, so a lot of material is required to shorten the reverberation time. Typically, the ceiling would be a very suitable place to add absorbing materials, but in this space, that wasn't possible.“











The Hyparschale consists of four hyperbolic paraboloid roof surfaces and has a total area of 48 by 48 meters with glass facades on all four sides, with the highest point of the curves reaching 16 meters. Inside, there are no supports, resulting in an uninterrupted, unique, open space. Skylights that had been hidden under roofing material for years were reintroduced, dividing the ceiling into quarters and emphasizing the arch of the roof inside. Additional light flows through the transparent glass facade, which replaces the original translucent industrial glass and offers a view of the surrounding Rotehorn Park.

## Multipurpose Use

To enable multiple uses of the space, GMP Architects added cubes at each corner of the room in a grid pattern that follows Mütter's design. The cubes have a floor plan of 15 by 15 meters, two of which (designed as seminar rooms) can each accommodate up to 127 seated people. All four cubes are connected by bridges that span the space in the upper floors. The individual ground floors serve different functions. One houses facilities such as toilets and cloakrooms, another contains a café, and the two rear ones serve as multipurpose rooms for lectures and training, also incorporating large partition walls. The first floors feature exhibition galleries. The remaining central area is spacious and can be used as an auditorium with 500 seats. The positioning allows the impressive volume beneath the vaulted roof to be fully showcased. The reverberation times in this space would have been far too long even for concert or orchestra performances and would have prevented acceptable speech intelligibility without absorbing measures.

## Mathematical Balancing Act

Due to the roof's structure, conventional methods, such as applying an absorption layer to the ceiling, were not possible. Given the complex mathematical balancing act that maintains the vast free-standing curve, the ceiling could neither be altered nor weighted. Additionally, the optical lines could not be disturbed, meaning curtains or acoustic baffles for the space were not an option. This posed a challenge for the acousticians involved in the project.

The large glass windows also reflect strongly, and since the room is almost square, the walls are parallel to each other, leading to flutter echoes that negatively affect speech intelligibility. Limiting the rever-

beration time in the space reduces these echoes, and the blinds installed on the windows to provide shade offer some sound absorption, which helps control the flutter echoes in the audience area.

## Room Acoustics

The main solution for controlling the room acoustics came from the four cubes and the connecting bridges. These spaces were acoustically treated, not only internally with absorbing materials on the walls but also with special five-layer curtains that allow for a sound level difference of 20 dB on each side. They were also treated externally by covering every possible surface with damping materials, including the undersides of the bridges and the wall surfaces. The materials used include stretched metal plates with absorbing material on the back. Lateral reflections were allowed to support the listeners and ensure that the acoustics matched the expected sound for such an open space.

„The Hyparschale requires an extraordinary approach to achieve the correct room response. If, as a spectator, you don't have reflections from the side, you don't feel comfortable because there's no auditory interaction with what you see“, explains Behrens. „For this reason, we left some reflective surfaces. The walls look the same, but behind the metal plates, there's sometimes no absorbing material, so the original acoustics are not so strongly dampened by these surfaces.“

The central performance area and auditorium are equipped with high-quality technology and feature a Kling + Freitag Vida-L system specified by ADA-AMC (WSDG), as well as a lighting system designed by Lichtvision Design. The Kling + Freitag loudspeaker system is a scalable, controllable full-range line array system. This system ensures that the sound energy is directed exactly where it's needed, which has the double benefit of not directing energy into the large, reverberant hall and ensuring that the highly absorbent audience absorbs most of the sound, further reducing the likelihood of exciting the room acoustics. The system has a wide frequency range and is capable of providing optimal sound for spoken words or music performances.

The result of the thoughtful considerations by the ADA-AMC (WSDG) team is a beautiful, usable space that fulfills its mission to be both multifunctional and a valuable asset to the community, as architect Christian Hellmund, partner at GMP Architects, concludes.





## Architectural brilliance

Thoughtful lighting design and architectural sophistication: The auditorium and staircase of the Vihtavuori School Center in Laukaa, Finland, has become the vibrant heart of the school.

The Vihtavuori School Center is the largest construction project in the history of the municipality of Laukaa in Finland. The school center offers a multifunctional learning environment for 650 children. Under one roof, classrooms, preschool facilities, a youth center, a counseling center, and a local library are integrated. LTS Licht & Leuchten GmbH, in collaboration with the sister company Fagerhult Finland, contributed to this project. LTS produced the light channels for this construction and transformed the Vihtavuori school into a bright and open learning and social environment.

At the center of the school building, there is a central gathering area that is actively and frequently used by the students as a space for recreation. This meeting point is used for learning, entertainment, and also as a platform for various performances. It is fully accessible and integrated into the open staircase.

With a design reminiscent of an auditorium, the entire staircase serves as a meeting point and auditorium. A lighting pattern, created with LTS light channels installed in the ceiling, moves like an angular snake above the heads of the students. The light lines illuminate the entire staircase and simultaneously serve as an architectural highlight and detail.

The lighting concept and calculations were designed to ensure that the same amount of light is provided on all steps and levels. The lighting manufacturer LTS, based in Tettng on Lake Constance, precisely constructed all the light channels to fit the ceiling structure with millimeter accuracy and delivered them as custom-made solutions. „Light does much more than just fulfill a functional task here; it shapes the character and quality of this gathering space for young people“, says lighting designer Tiina Eskelinen. „The project management team met during the construction work in the auditorium and experienced firsthand how well the lighting works. The pattern created by the light channel is a flexible and visually impressive functional element that absolutely fulfills its objectives. The good collaboration among all parties was key to achieving a successful result.“

The LTS light channel is the ideal lighting solution for teaching and learning spaces. At prominent locations, such as here in the auditorium, the

linear light solution is deliberately used. The geometric versatility of the system offers creative freedom - whether angles, triangles, wall-to-ceiling transitions, or even jagged polygons - LTS rises to the challenge of creating project-specific custom shapes that go far beyond the orthogonal arrangement of light lines. And it is this individuality and dynamism that gives the lighting solution of the Vihtavuori School Center its own distinctive character. It is convincing both stylistically and technically: all requirements for lighting levels, uniformity, and glare-free conditions for learning spaces are met.

The lighting in the school sports hall primarily serves safety purposes: athletes must be able to clearly see the equipment during rapid ball exchanges or comfortably use the devices. Additional accent lighting improves visual comfort, sections off the hall, and contributes to the overall well-being. State-of-the-art LED lighting technology gives the sports hall a completely new sense of space. Lights with adjustable color temperatures, meaning flexible control over the color of light, allow the stimulating effects of daylight to be transferred into the building with relatively little additional effort. This contributes to a greater sense of well-being, while being both motivating and relaxing. The goal of the lighting concept is to tailor the light to the athletes: more light for ball sports, less light for relaxation exercises on the floor. It is important that people lying down are not blinded by direct light from the fixtures. The light sources are therefore appropriately aligned and meticulously planned down to the smallest detail. This is crucial, as a wide variety of tournaments and sporting events take place in the Vihtavuori School Center's sports hall in Laukaa, particularly floorball, volleyball, and football tournaments.

The starting point for the lighting design is the technical lighting requirements set by the Finnish Sports Association, such as lighting levels and fixture characteristics. As a result, intelligent planning of separate circuits and a thoughtful lighting control system are key. This takes into account the varying demands and ensures greater efficiency. The sports hall lighting, supported by a DALI programming system, accommodates national-level games as well as any school sports and various other events. The sports hall built here meets the highest standards for all visual tasks and impresses with a lighting level that meets the needs of all sports. Lighting that can be dynamically adjusted.



# Cold white man

Mott Mobile Systems equipped the renowned Chambinzky Hafentheater in Würzburg with state-of-the-art stage technology.

In close collaboration and following a detailed planning phase that also included an extensive on-site inspection by the technical department, Mott was able to equip the new Hafentheater of the Chambinzky Theater, which has been established for over 40 years, with the most modern stage systems.

The new Chambinzky Hafentheater is characterized by modern, sustainable design and barrier-free accessibility. With a capacity for 200 spectators, it offers an inviting atmosphere for a wide audience. For its opening, the play „Kalter Weißer Mann“ (Cold White Man), a comedy by the successful authors Dietmar Jacobs and Moritz Netenjakob, was featured. Further theater productions and cultural events are expected to follow.

To meet the specific requirements of the Hafentheater, the technical team from Mott Mobile Systems conducted an extensive planning phase, including a detailed on-site inspection at the theater itself. During this visit, the experts carefully analyzed the requirements and spatial conditions and coordinated with the theater team to develop a tailor-made solution, particularly with regard to the accessibility of the auditorium.

Thanks to the targeted preparation, the Hafentheater was equipped with both standard stage platforms and special custom constructions from Mott, including:

- Over 400 adjustable feet: Ranging in height from 17 cm to 140 cm, including custom intermediate heights, these adjustable feet offer maximum flexibility and allow for safe, adaptable setup configurations.
- 74 „Praktikus 750“ platforms (2 x 1 m): Equipped with high-quality HDF carpenter boards in a natural finish, these platforms provide opti-



mal stability and flexibility in the audience area. The client later added carpet flooring to match the theater's interior.

- 33 custom-sized platforms: To perfectly fit the spatial requirements of the Hafentheater, Mott developed special measurements that were precisely integrated into the planned tier structure.
- 30 safety railings: For added safety, custom railings were manufactured and integrated into the theater room's structure, based on comprehensive static calculations by the technical team.

„Through close and successful coordination with the Chambinzky Theater, we have managed to optimally meet all safety and flexibility requirements. We are pleased to contribute sustainably to the promotion of culture in Würzburg in this way“, says Managing Director Jürgen Junker.

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# Country flair at Ole Red Las Vegas

Ole Red, located in the heart of Las Vegas, combines a restaurant, bar, and live music. The lighting design by Bryant Woelk, owner and senior lighting designer at FXLighting LLC, was implemented by Clair Global Integration (CGI) using Elation fixtures.

Inspired by Blake Shelton, Ole Red is operated by the Opry Entertainment Group. The first Ole Red location opened in 2017 in Shelton's hometown of Tishomingo, Oklahoma. Las Vegas is now the sixth location for this entertainment chain.

Clair Global Integration was responsible for procuring audio, lighting, and control systems for the new venue, handling system design, installation, and programming. Senior Lighting Designer Bradley Cronenwett of Clair on the design phase: „Although Ole Red operates as a restaurant, the client wanted to create an immersive experience as if you were at a concert, but with hospitality. Therefore, the environment is full of energy.“

Ryman Hospitality Properties, owner of the Opry Entertainment Group, tasked CGI with implementing all Ole Red locations. Clair worked closely with Andy Roy, Assistant Director of Production and Technical Services at Opry Entertainment Group, to ensure all requirements were met in Las Vegas. Clair enlisted Bryant Woelk for the lighting design. This was Woelk's first collaboration with Clair, Ryman, and Ole Red. Having previous experience with similar projects, Woelk said he had full creative freedom to shape the lighting atmosphere and drew much of his inspiration from frequent visits to an Ole Red near his home in Orlando, Florida.

With a constantly changing lineup of country musicians, including occasional performances by Blake Shelton himself, Ole Red Las Vegas features live music on a main stage from morning until late at night. Spread over three levels (ground floor and two balconies) with views of the main stage, guests can dine and enjoy country music at concert-level quality from every seat.

The lighting for the main stage includes a complete concert rig, which operates from the balcony railings and is surrounded by atmospheric lighting. Woelk comments: „For the main lights, we wanted a moving light and chose the Fuze Spot from Elation. It's mainly used for front lighting but also for Gobo texture washes on stage and as a moving light for the space. Dartz-360 narrow-beam moving heads were selected for the beam effects.“

Woelk had previously used most of the specified equipment, except for the Colour 5 Profile, which is used for stage lighting on the main stage and for IMAG purposes. Since it is a large space, IMAG is displayed on a 37-foot LED screen. Three Colour 5 Profiles light up a real farm tractor, which hangs upside down about 50 feet above the crowd and serves as a signature decorative element and photo opportunity at Ole Red venues.

According to Woelk, creating a concert-like atmosphere over three floors presented challenges: „You want to ensure that guests have a view of the stage from all three levels - especially from the top level. It's a live concert venue and restaurant, but above all, it's an interactive space, so I added several lighting positions above the tables in the hall to play with the stage lighting and give the impression that the audience is part of the show.“

The equipment used includes the Six Par 100 and Six Par 300 for audience and stage lighting, with the Six Par 300 providing top light from a distance of 35 feet. Lighting is used throughout the venue on all three floors, from the stage to the bar - creating an immersive atmosphere designed to inspire guests to dance and transform the space into a large honky-tonk bar.



The roof of Ole Red Las Vegas offers a restaurant environment during the day and a luxurious rooftop lounge at night, which can also be used for private events. In addition to live music, DJ sets, and line-dancing classes, the rooftop provides a view of the Las Vegas Strip and the Bellagio fountains.

The roof also features a bar and a small stage. „I'm from Florida, and I'm familiar with severe weather and the need for IP-rated equipment. Vegas, however, presented a different reason for its use: sandstorms. It was very important to keep sand and dust out of the equipment.“ Elation Proteus Rayzor 760s act as moving-head washes, while IP-rated Six Par Z19 IPs light up the entire stage and provide visual effects for the rooftop stage.

For atmospheric haze and mid-air projection canopies in both indoor and outdoor areas, a Magma Prime Hazer from Magmatic Atmospheric Effects was used. The hazer provides complete coverage with dry fog. „It produces a fine mist that enriches the atmosphere and gives depth to the lighting effects“, says Cronenwett.

The Elation equipment installed includes: 13 Fuze Spot, 12 Dartz 360, 21 Colour 5 Profile, 12 Proteus Rayzor 760, 80 Six Par 100, 12 Six Par 300, 36 Six Par Z19 IP, 2 Magma Prime, and 2 Magma Fan.

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





## On Maiden Voyage

The „Sun Princess“ from Princess Cruises set sail on its maiden voyage in mid-2024, equipped with a newly designed AV system. The ship features multiple LED walls, all controlled by Hippotizer media servers.

The „Sun Princess“ accommodates 4,300 passengers and is equipped with a multi-story dome. It is the largest ship in the Princess Cruises fleet. Innovation is evident in the video elements onboard, including those in the Piazza, Arena Theatre, Dome, Princess Live venue, The Landing, and at the Lido Pool. In total, two Hippotizer Tierra+ MK2, two Mayon+ MK2, one Karst+ MK2, and two Amba+ MK2 media servers were installed to control the video walls.

„This new ship stands out from other AV systems because the focus was on creating large, welcoming spaces without bulky elements like projectors and screens that would disrupt the flow of the space design“, explains Matt DeJong, Fleet Manager for Lighting/Video at Princess Cruises. „The solution with large video surfaces led to the specification of LED walls with a relatively slim build. I chose Hippotizer because the unified interface and scalability met the space’s

requirements.“ Additionally, the Hippotizers allow for components to be added as needed. Many of the servers are in constant use 24/7.

At the heart of the ship is the Piazza, which is equipped with a large LED wall split into three sections. „This wall runs 24 hours a day, displaying atmospheric, time- and location-specific content as well as evening entertainment“, says DeJong. „We installed a Hippotizer Tierra+ MK2 with two capture cards and an external LTC device from CB Electronics to synchronize media with the show control. The Tierra+ MK2 is also responsible for controlling the RGB architectural system from an ETC Atlas Pro, which has a DVI input, allowing the entire space to be filled with specific content.“

DeJong used the Shape function of Hippotizer to track the position of the screens. This allows content to be displayed regardless of whet-







her the screen is open or closed, creating seamless transitions as the screens move. „We use Macro Manager to manage the 24-hour content, controlled via OSC messages from a GrandMA 3 console“, says DeJong. „The Hippotizer is mainly controlled through a GrandMA 3 Lite in the room via sACN. It is connected to the ETC Atlas Pro for architectural lighting.“

In the Arena Theatre, an LED wall, made up of nine segments, is installed and can move and rotate as needed for each production. „I knew that media would play a major role in delivering many of the images and set pieces for the shows“, says DeJong. „The large format of the LED wall, combined with the high-performance demands of the space, led me to select a Hippotizer Tierra+ MK2, equipped with two capture cards and an external CB Electronics LTC reader. The Hippotizer Video Mapper is used to adjust the screen view sizes in Cabaret Mode. For control, we installed a GrandMA 3 Full Size.“

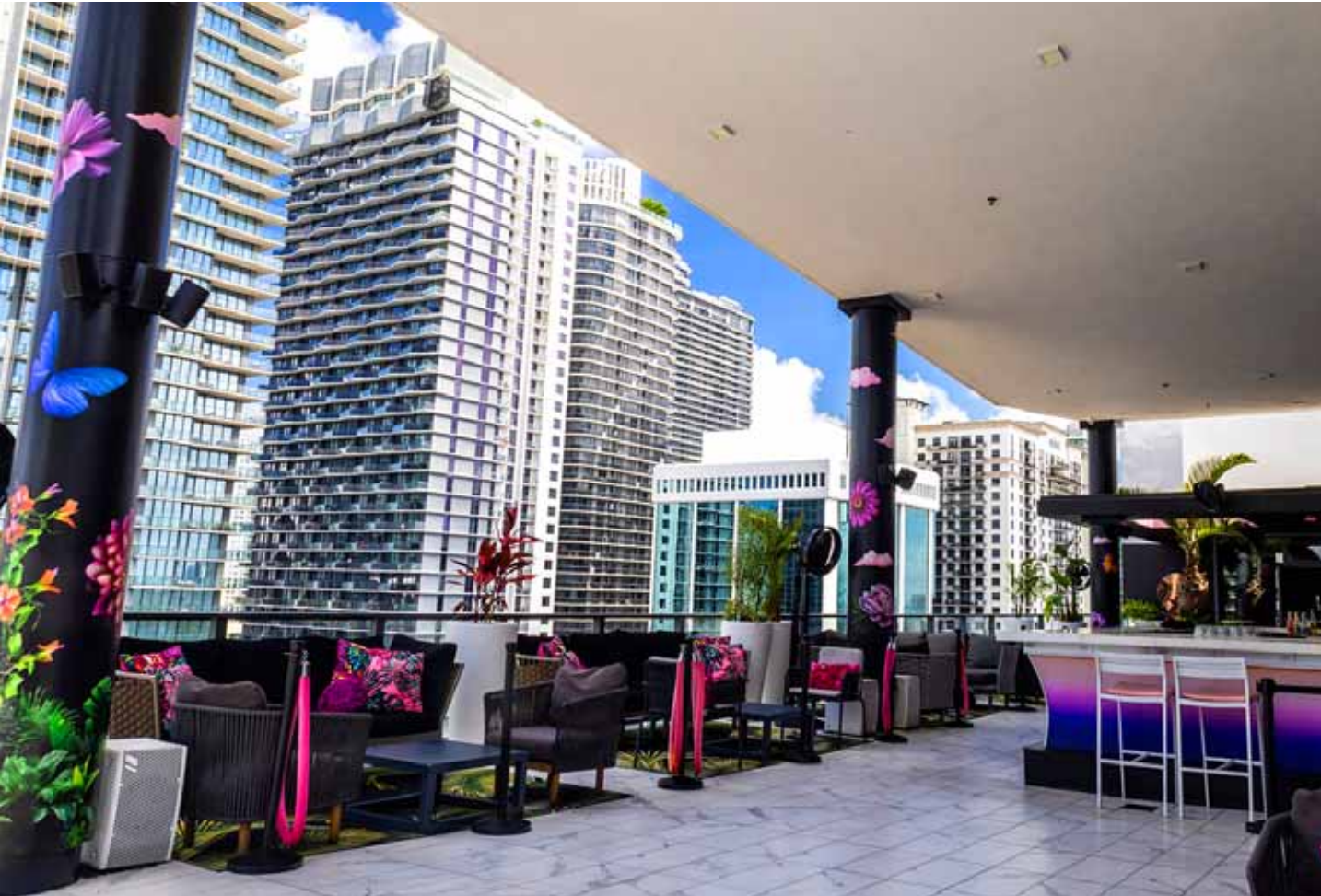
LED panels are also built into the scenic stages in the Arena Theatre. A central show requires a large pixel map for specifically shaped scenic pixel lightboxes. A Hippotizer Mayon+ MK2 handles this. The pixel map is connected directly to the 10G port of the Mayon+ MK2 and is distributed through the show network.

The ship's glass dome features another large LED wall at the center of the curved structure. During the day, it displays atmospheric content but can also serve as a stage background for performances like „Cirque Eloize“ and for nightclub events. A Hippotizer Karst+ MK2 controls the video in this area, equipped with a capture card and an external CB Electronics LTC reader for show synchronization. The 24-hour content is managed with Macro Manager and OSC messages from another GrandMA 3 Lite console. It is primarily controlled via sACN from the lighting desk.

In other areas of the ship, like the Princess Live promenade, which offers musical acts and live entertainment, a long letterbox-shaped LED wall runs with a Hippotizer Amba+ MK2. On the lower guest deck, „The Landing“, an LED wall follows the curvature of the space on one side. This wall displays news during port days and regular atmospheric content 24 hours a day when the ship is not in port. This server is a Hippotizer Mayon+ MK2 with a capture card and is controlled from two points: a QSC touchscreen in the venue and a GrandMA 3 on PC via sACN. The Lido Pool also features a large outdoor viewing wall, with a Hippotizer Amba+ MK2 delivering synchronized content for shows and controlled via a GrandMA 3 Command Wing XT over sACN.









# Zukunft Pink

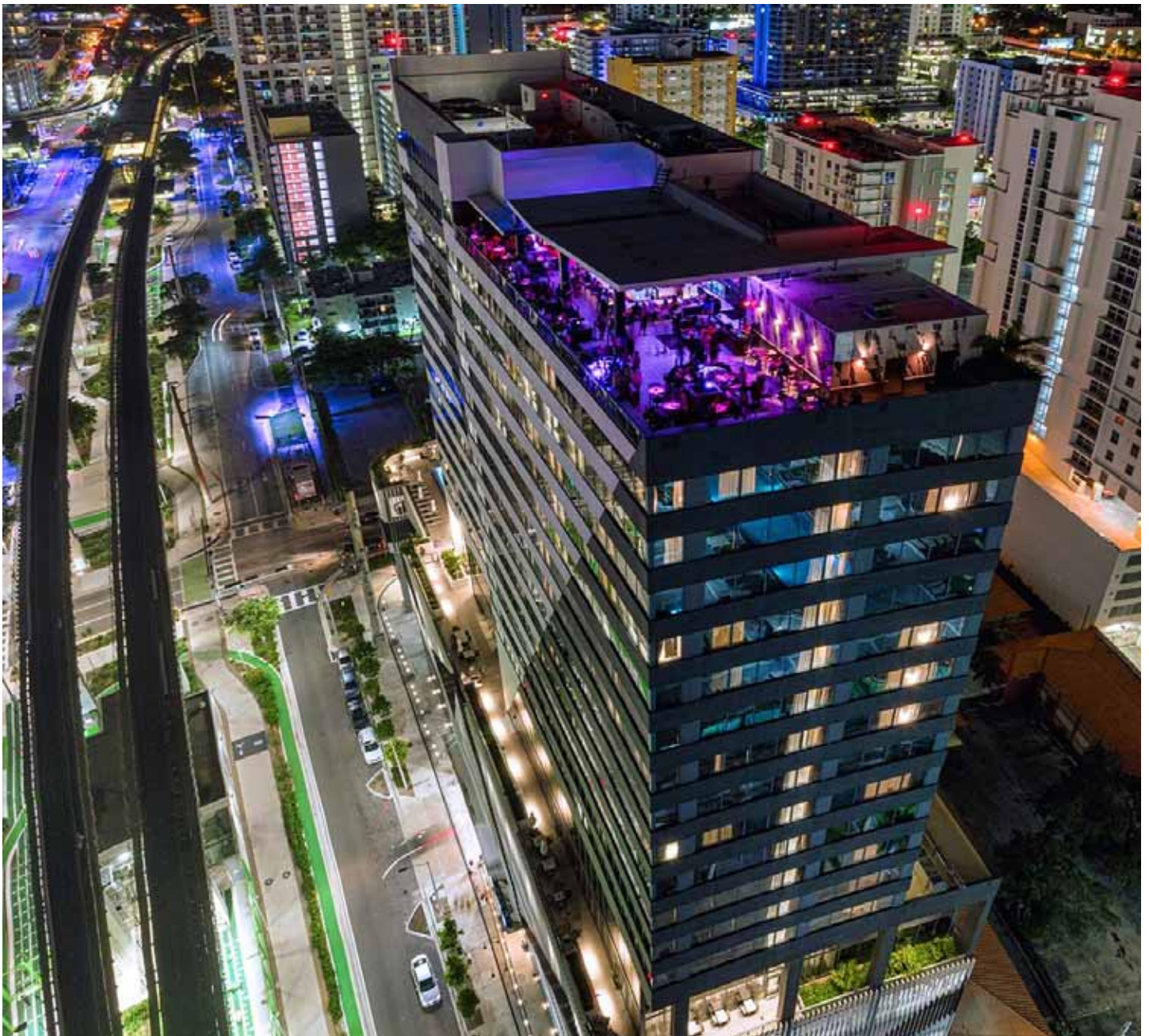
Miami is one of the few cities that can offer the luxury of a year-round rooftop bar. In the Brickell district, „Rosa Sky“ has claimed its spot as a trendy hotspot for mixing and mingling. The sound comes from DAS Audio.

Located on the 22nd floor of the AC & Element Hotel, the rooftop bar „Rosa Sky“ offers a pink-hued environment with panoramic views of the Miami skyline, exotic tapas, handcrafted cocktails, and a selection of live DJs and musicians keeping the mood going with a DAS Audio sound system.

As Alan Roth from the South Florida hospitality group The Restaurant People explains, other rooftop terraces are one of the biggest challenges when operating a rooftop lounge. The area’s population mainly consists of luxury condominiums, and not all residents are thrilled with the festivities: „Our biggest challenge in designing the system for Rosa Sky was to create a system that sounds fantastic at the venue but doesn’t disturb the neighbors“, he says. Roth’s team turned to the Miami-based company 305 AV, which proposed a system based on DAS Audio loudspeakers.

The system, provided by Randy White from Washington Music Center and installed by 305 AV in collaboration with John Fiorito, National Sales Manager for Hospitality & Nightclub at DAS Audio, is based on sixteen 2-way full-range systems from the Quantum Series Q-23-T. „The Q-23-T is designed for short-range coverage, with a focus on speech clarity, which made it easier for us to focus the sound on the seating areas and minimize critical volume levels that could disturb neighboring buildings“, says Fiorito.

Low frequencies are covered by eight compact 10-inch Q-10 subwoofers, while a pair of Deco-6-TB 2-way ceiling speakers provide spot coverage. The entire system is powered by EP amplifiers from the E11even-Sound-by-DAS-Audio series. „The system delivers everything we wanted“, Roth concludes. „And we haven’t received any complaints from the neighbors.“





## 24/7 lifting and moving stage scenery

For over two decades, Hungary-based Gépbér-Színpad has been developing and implementing solutions for theater and stage technology - most recently during the retrofit of the Szigligeti Theater in Szolnok. Project manager Attila Major relies on Beckhoff's PC-based Control system to manage and monitor the stage floor and overhead machinery.



The Szigligeti Theater is one of Hungary's most renowned theaters. Opened in 1912 and in continuous operation since, it underwent a comprehensive renovation in 2021. As part of this project, Gépbér-Színpad Ltd. was tasked with designing and constructing the entire stage technology.

Project manager Attila Major explains: „The design of the theater technology posed multiple challenges.“ On the one hand, the designers and engineers had to adapt to the historic building structure. On the other hand, moving stage scenery in proximity to people required stringent safety standards. Therefore, the entire automation technology was designed to meet the requirements for stage technology outlined in EN 17206:2020 and EN 62061. According to Major, no other theater in Hungary has this level of safety technology.

János Bódvai, support engineer at Beckhoff Hungary, adds: „We were delighted to contribute to the extensive automation of stage technology with PC-based Control.“ This covers:

- 18 devices for moving up to 250 kg scenery elements at speeds of up to 1 m/s
- 44 point hoists distributed across four rows
- a five-part system for moving the orchestra pit
- a turntable with a 9.5-meter diameter and variably integrated descent platforms
- a freight elevator for lifting scenery and furniture to the stage level

Beckhoff recommended the Czech company Drivecontrol for the engineering and programming of the stage systems used for moving point hoists and scenery. Drivecontrol's control system, Items (Intelligent Technology Motion System), is based on the TwinCAT software platform. The safety control part was implemented using EtherCAT TwinSAFE terminals, including 64 digital input terminals (EL1904), 64 digital output terminals (EL2904), and a TwinSAFE Logic (EL69xx). Signals from SIL 3-certified rotary encoders used by Gépbér-Színpad were read via 64 EtherCAT encoder interfaces (EL5001, SSI). For standard control functions, an additional 128 EtherCAT digital input terminals (EL1008) and 64 digital output terminals (8-channel each) were used.

During the construction of the communication architecture, project leads Attila Lukács and Gergely Major took advantage of EtherCAT's topology flexibility. A variable topology with eight fundamentally indepen-



The team (l-r): Support Engineer **János Bódvai** und Marketing manager **Éva Porgánszki** (both from Beckhoff Hungary) as well as **Attila Lukács**, **Gergely Major** and **Attila Major** from Gépbér-Színpad

dent EtherCAT branches was formed using two real-time Ethernet port multipliers (CU2508), an 8-port EtherCAT distributor (CU1128), 16 EtherCAT couplers (EK1101) with ID switches, and 64 two-port EtherCAT branches (EK1122).

„If an error occurs in one branch, the other EtherCAT segments are not affected“, explains Gergely Major. „No performance should be canceled due to control technology issues“, emphasizes Attila Lukács. Therefore, the central control cabinet houses a second compact industrial PC (C6920), which theater technicians can immediately switch to. Since theater infrastructure must function flawlessly 24 hours a day, seven days a week, the reliability of all components was a key selection criterion. Long-term availability of control components was also essential, as maintenance and modernization of the stage technology need to be possible for the next 25 years.

Attila Major also highlights the advantages of PC-based Control, including the simple integration of stage technology with AV and media systems, the building management system, and remote maintenance capabilities. Gépbér-Színpad technicians can provide immediate support to the theater operator in the event of a malfunction - though this hasn't been necessary so far. „For over a year, the stage technology has been running smoothly to the satisfaction of everyone involved“, says Major.

[www.beckhoff.com/entertainment-industry](http://www.beckhoff.com/entertainment-industry)



With its more than 200-year history, the **University of Music and Performing Arts Vienna** (mdw) is one of the most traditional music universities in the world, and it also plays a leading role in audiovisual education. The Institute for Composition Studies, Sound, and Music Production has expanded its sound control room



B with the installation of a **Lawo mc236 MkII All-in-One** mixing console. This is the second Lawo mixing console at mdw, following the installation of the **Lawo mc256 MkIII** for sound control room 1 in August 2023, and it is now in use for training and production.



In audio recording and post-production of classical music, sound engineers and masters require a mixing console that can be flexibly and individually configured for the specific task at hand. This combination allows the simultaneous management of multiple channels to precisely represent the complex sonic structure of orchestras and vocals.

The **Congressforum Frankenthal** is an architectural gem that combines modern elegance with functional versatility. **Feiner Lichttechnik** was commissioned in early 2023 to design and plan the energy-efficient renewal of the main hall lighting. Several aspects had to be considered: On the one hand, greater brightness than the previous lighting was required; on the other hand, the character of the hall and the dimming behavior of the



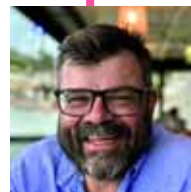
lights had to be preserved. All new lights were therefore designed in a dim-to-warm version. For the main lighting of the hall, **Feiner**, in collaboration with their partner **Electron**, developed a new variant of the existing **Talus** light with a tilting bracket, warm-dimming 31 W LED from **Bridgelux**, and an integrated DMX driver. The DMX data bus wiring through XLR 5-pin in/out sockets allowed for the quick replacement of 188 lights.

The **Elbeforum Brunsbüttel** recently shone in a new light. The executing company, **Magnussen EMSR Technik** from Brunsbüttel, and **Vision Two** jointly replaced the existing halogen lighting with high-quality LED lighting. The heart of the project is the **GDS Drive Hub LED driver**, which, with its IPM technology, allows dimming of the LEDs using the existing wiring. No additional signal lines like DMX or network cables needed to be laid, which would have been a major challenge for construction or might not have been feasible. The IPM technology enabled easy integration of the lighting solution without requiring additional space for control gear in the ceiling. A total of 410 LED



downlights from **GDS (Puppis 1K IPM)** in a custom color were installed, complemented by specially made glare rings and adapters.

The **Wiener Stadthalle** (Vienna City Hall), opened in the late 1950s in the 15th district of Vienna, is one of the leading event venues in Europe. To ensure top ratings in the entertainment sector in the future, the hall's managers invested in a new sound system and, after extensive comparison tests, opted for systems from **Coda Audio**. **Audio-Integra** was awarded the contract as the system integrator. **W&W Consulting & Sales (Wilhelm & Willhalm)** was responsible for the project, conducted simulations, and provided the most suitable audio equipment for the installation. Four different premium-class providers submitted their systems for the bid.



„We didn't want to rely solely on our ears, so we commissioned a renowned measurement technician to obtain objective measurement data“, says **Christoph Mader**, Head of Sound Engineering at the **Wiener Stadthalle**. The final choice was **Coda Audio**. **Christoph zur Loye** of **Audio-Integra** in Munich is both proud and pleased about the commissioning of such a significant installation.



ROE Visual's **Carbon CB5 LED Wall Breaks Records** with the **Adele Munich Spectacle**

Photocredit: Stufish, Adele in Munich

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## Diamond fever

After more than sixty years of rock'n'roll, the Rolling Stones have so far only toured North America with their „Hackney Diamonds“ tour. Rumor has it that Europe is on the schedule for next year. Here's a little preview.

The shows included both classics and new material, featuring a modern production that incorporated Proteus Maximus spotlights by Elation, among other elements. The Stones were supported by an experienced production team. Creative Director once again was Patrick Woodroffe (who, by the way, is now 70 years old), who collaborated with lighting designer Terry Cook from WBD (Woodroffe Bassett Design) and associate lighting designer and programmer Ethan Weber, both

long-time partners of the band. The lighting technology was provided by Upstaging.

„We knew from the beginning that video would play a big role in the tour, so selecting the right lighting was crucial“, says Cook, adding that the team met several times with Upstaging to discuss potential options. „I wanted a spotlight that was versatile and bright - this was crucial for the







look and feel of the show.“ While Woodroffe set the overall lighting guidelines, Cook made the specific decisions with the support of Weber.

Cook is very familiar with the Proteus Maximus, a 50,000-lumen spotlight, from previous shows: „We knew it had enough power to compete with the video wall“, he says. „Although we were under the stage roof, we wanted an IP-certified spotlight to minimize the maintenance effort for the tour team. And thanks to the LED technology, we ensured that the light source wouldn’t lose brightness over the entire length of the tour.“

The Maximus spotlights served as workhorses for the lighting rig and were positioned on central and side trusses as well as vertical supports to the left and right of the stage. To create a unified feel, they were evenly distributed in the rig, forming a grid of lights above and to the sides of the stage. Since the Rolling Stones don’t play the same setlist every night

and there are many variables from show to show, the team had to be flexible and able to react accordingly. A high-performance spotlight with profile, beam, and wash capabilities, as well as a comprehensive effect package, was therefore essential.

„We used practically everything the spotlight had to offer“, says Cook. „With the band’s performance catalog of nearly 100 songs, we really had to push the spotlights to their limits. The animation wheel is great, but it was the zoom that allowed us to go from wash to beam as we moved from one song to the next. The spotlight is incredibly versatile due to its many different options - a real hybrid unit - and that’s extremely helpful.“

Cook worked closely with Weber, an experienced Stones veteran who has been lighting the band for thirty years. „Overall, I was impressed that the Maximus spotlights weren’t outshone by the large video wall behind







them“, says Weber. „With a little fog in the air, we had both a light and video show - harmoniously synchronized.“ He also emphasizes that the spotlight was used for special moments in some of rock’s most famous songs. „Some of my favorite moments were during ‘Paint It Black’ and ‘Satisfaction’, where I switched between a gobo look and an open beam look for the verse/chorus (Paint It Black) and Mick Jagger’s call-and-response parts (Satisfaction). Normally, I wouldn’t do something like that because it could look chaotic, but the gobo motors in the Maximus are so fast that everything looked seamless, and I found it very effective.“

The Stones began their „Hackney Diamonds“ tour on April 28, 2024, at the NRG Stadium in Houston. The tour is set to end on July 21, 2024, at the Thunder Ridge Nature Arena in Missouri - at least for now.

**Produktion Design:** Stufish, Patrick Woodroffe, Mick Jagger  
**Set-Design:** Stufish Entertainment Architects  
**Creative Director:** Patrick Woodroffe  
**Lighting Design:** Terry Cook  
**Associate Lighting Design/Programming:** Ethan Weber  
**Content Creation:** Treatment  
**Video Director:** Mike Duque  
**Video Screens Director:** Roland Greil  
**Produktion Director:** Dale Skjerseth  
**Team WBD:** Liz Sinclair, Aiden Bromley, Caitlin Faria  
**Lighting Technology:** Upstaging Lighting  
**Video Technology:** Nighthawk Video  
**Trucking:** Upstaging

#### Setlist Tour-Abschluss

Start Me Up  
 Get Off Of My Cloud  
 Tumbling Dice  
 Angry  
 Let It Bleed

Street Fighting Man  
 Whole Wide World  
 Mess It Up  
 You Can’t Always Get What You Want  
 You Got The Silver (vocals: Keith Richards)  
 Little T&A (vocals: Keith Richards)  
 Before They Make Me Run (vocals: Keith Richards)  
 Sympathy For The Devil  
 Honky Tonk Women  
 Midnight Rambler  
 Gimme Shelter  
 Paint It Black  
 Jumpin’ Jack Flash

Sweet Sounds Of Heaven  
 (I Can’t Get No) Satisfaction

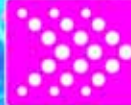




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## Adelepolis

Following the successful Las Vegas residency „Weekends with Adele“, the iconic singer and her promoter Live Nation delivered another highlight with Adele in Munich, a one-month production in a custom-built open-air arena with 80,000 seats.

The 16-time Grammy winner, who has sold over 100 million albums worldwide, told her fans on Instagram: „A custom-built pop-up stadium designed for any kind of show I want to do? I can't think of a better way to spend my summer.“ Adele now also holds the record for the highest attendance at a „concert residency“ outside of Las Vegas.

The production manager for the concerts was Paul English, who relied on technical expertise from various trades provided by Clair Global, with support from Clair's account executive Andy Walker.

„Andy really thought everything through perfectly and involved the IT team, so we had fast and stable internet across the entire site throughout the event. This made our work backstage much easier, especially across a length of over 600 meters“, English notes. „We were all connected via a communication system, so we could move around everywhere with a Riedel Bolero pack. It worked perfectly and met our exact requirements.“

„As for the sound, the shows in Munich were phenomenal; the audio was absolutely impressive from side to side and front to back of the stadium“, English adds. „It's always fun working with Adele's audio team, supported by Clair as the supplier. We already saw this in Las Vegas, where internet, communication, PA, and control all came from a single source. I have to say, an all-in-one solution with multi-services like this is a huge advantage.“



„This gigantic project required extensive resources from Clair Global locations in North America, the UK, and Europe“, adds Andy Walker. „But this allowed the production to use a single provider for multiple services: audio, communication, radios, and production IT. Clair IT engineer Kevin Lehmann managed 150 Wi-Fi access points, the site-wide IT support network, and fiber-optic distribution.“

### Audio engineering

Clair Global implemented a control package similar to the Las Vegas configuration: Digico Quantum 7 consoles for both front-of-house and monitor sections, operated by Adele's long-time sound engineers Dave Bracey and Joe Campbell.

Adele, renowned as one of the best performers in the world with top-notch production standards, faced an even larger-scale setup in Munich - both in terms of the PA system and monitoring and radio technology.

To ensure optimal sound for the 800,000 attendees, system engineer Johnny Keirle designed an extensive setup with 36 arrays and 14 delay towers of L-Acoustics K1/K2/L2. This setup provided crystal-clear coverage, accounting for amplifier positioning and signal distribution.

„When the PA sounds this good, my job becomes easy“, says Dave Bracey. „We used the L2s, which Clair acquired specifically for the







event; their rear sound dampening makes them the perfect delay speakers.“

„The Munich shows required a completely different system design approach, making PA design a complex process“, explains Johnny Keirle. „While we use an immersive LISA system in Las Vegas, in Munich we opted for a traditional L-R/dual-mono system. The stage design required solutions for high flying points at the main stage and discreet, clean audio solutions for the audience area. The main stage system was flown high to keep the video wall clear, with K1SB/K1, KS28, and K2 downfill arrays to achieve near-field coverage without interference or loss of high-frequency integrity in the main K1 system.“

With a stage extension reaching 100 meters into the audience and a runway connecting the left and right sides, the team had to place the delays outside the Golden Circle and the runway area, heavily relying on the main stage K-series. The main stage system comprised six positions:

main L-R, side L-R, and outer L-R. Two rings of L2 delay speakers covered areas outside the runway, with the first ring featuring six positions and the second ring eight.

Keirle also had to consider external factors: „Open-air shows often pose challenges due to noise regulations“, he explains. „Additionally, the summer weather was rather unpredictable, so I designed a system capable of handling sudden weather changes without relying on optimal conditions for HF propagation. The primary goal was to achieve homogeneous coverage while maintaining consistent image and timing integrity across the widest possible audience area.“

„In a scenario where the audience is over 200 meters away from the artist, it's crucial that those farthest from the stage enjoy just as great a sound experience as those in the front rows“, Keirle continues. „Especially with an artist like Adele, where vocal intimacy and immediacy define her presence, the choice and placement of speakers are of utmost importance.“



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Nicht nur draußen, sondern auch im Indoor-Einsatz ist der Magic Sky als Raumtrenner und atmosphärischer Fokuspunkt ein effektives Werkzeug für ein erfolgreiches Event.









He adds: „Clair once again went above and beyond, providing additional services typically not part of an audio provider’s portfolio. A prime example is the design and fabrication of custom wind reinforcements for all flown PA elements.“

For a live production of this magnitude, the experienced monitor team faced challenges as well. „A key difference at this venue was the long distances over which we had to transmit and receive RF signals for in-ear monitors and wireless microphones“, explains Joe Campbell. „We used RF-over-fiber with this artist for the first time and chose a Wisycom system - it worked brilliantly.“

Clair deployed twenty Wisycom MFL RF antennas, managed by monitor and RF system designer Thomas Chip Valentino, who operated four RF nodes positioned around the runway: one at the B-stage, one central on the runway, and one each on the left and right sides of the main stage.

„We had many RF antennas distributed around the main and B-stages“, Campbell says. „As Adele and the background singers moved freely, different antenna systems were switched on and off to ensure uninterrupted coverage. It was quite a challenge, but it worked exactly as planned.“

A crucial factor for the seamless execution of the shows was the hidden network. „We had to supply all equipment positions for PA, communication, and IT - some of which were located in the middle of the large audience area - without visible cables“, explains Clair’s Event Support Engineer Laurie Fradley. „We decided to install a multi-strand network of about 1,200 fiber optic cables across the entire site, serving both our team and other departments that needed to access these areas.“

Communication system designer Patrick Taghavi managed the navigation of a Riedel Communications Artist 128 digital intercom network on AES67 audio networks. Given the need for reliable communication and audio signal distribution for 230 crew members, Taghavi says: „A key reason for using the communication system was departmental coordination, allowing the show director to manage cues precisely and safely.“

„The communication system we designed enabled crystal-clear communication in a busy live environment“, Taghavi adds. „Without a robust, clean system, a show of this size would not have been possible. It was critical for everyone’s safety.“

The 42-piece string ensemble utilized lifts embedded in the stage around the runway - another design element that required a custom light signaling system, also developed by Clair Global. Following a concept and design by Laurie Fradley, Jay Walton handled construction and programming. The communication system included a Raspberry Pi computer and a Stream Deck controller, providing a visual signal for the lifts and allowing the musicians to effortlessly rise from the stage in sync with the music.

## Lighting Technology

Florian Wieder designed the open-air stadium at the Munich exhibition grounds, while Cory Fitzgerald from the American design studio Silent House was responsible for the lighting design of Adele’s shows. He selected fixtures from various manufacturers, which is not uncommon for shows of this magnitude.

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back row (l-r): **Jay Walton, Eiran Simpson, Joe Campbell, Johnny Keirle**, front row: **Brooke Paterson, Chip Valentino, Dave Bracey, Juan Beilin, Claus Köpplin Orrán**

More than 250 Robe Forte fixtures were used, including 223 iForte LTX units for key positions around the artist and 36 iForte fixtures to illuminate the band. Thirteen iBolt lights were also part of the lighting design developed by Cory and the creative team led by show director Kim Gavin. The entire lighting equipment was supplied by the British company Neg Earth Lights.

## Guinness Record: The LED Wall

The scenographic concept was developed by Stufish Entertainment Architects and featured an impressive 220-meter-wide and 19-meter-high curved LED screen - a light source covering over 4,000 square meters. In front of the main screen was a 200-meter-long semicircular stage connected by a 93-meter-long curved walkway to a secondary stage in the center, allowing Adele to be closer to her fans.

This was made possible by LED panels from Roe Visual, all from a single production batch to ensure the highest visual quality. The curved LED wall was flanked by cylindrical towers resembling a giant analog film reel, complementing the thematic visuals displayed on the screen. With exactly 4,625 square meters of Roe Carbon 5 Mark II (CB5 MKII) panels in concave and convex configurations, the entire LED wall earned a „Guinness World Records“ title for the largest continuous temporary outdoor LED wall.



Clair Global Comms Team (l-r): **Elmar Dizon, Patrick Taghavi, Steve Murray**

„It's a great honor to present this title to Adele“, comments Joanne Brent, official adjudicator for Guinness World Records. „While she already holds multiple records for her music, this remarkable vision stands out and reflects the extraordinary experience she created for her fans.“

The design of the CB5 MKII panels, their 6,000 Nits brightness, and efficient heat dissipation made this massive installation possible. Success was due not only to technology but also to close collaboration between technical service provider Solotech and key partners such as Brompton Technology, Disguise, Twenty Three, and AV Stumpf.

Solotech developed, with expert support, the largest suspension frame ever built, capable of supporting 250 tons of LED panels, lighting, and rigging. The intricate design and custom solution concealed all rigging elements, ensuring a flawless appearance. „Every detail had to fit the overall design“, says Kristof Soreyn, CEO of Twenty Three.

Additionally, 26 Brompton Technology Tessera SX40 processors with numerous Tessera XD distribution units controlled the screen. These were housed in twelve custom pontoons along the 220-meter-long rear of the screen, powering individual video sections. Adam Callaway from Brompton Technology reported that the team worked closely with Solotech for over a year on this project, including extensive testing and validation. „Brompton was on-site for three days to ensure smooth operations using our 4K Tessera SX40 LED processors“, Callaway says, ad-



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ding, „We utilized various Tessler features, including Frame Store, Cable Redundancy, PureTone, API, and sACN for brightness control, all running on the new v3.5 Tessler software.“

The content team used AV Stumpfl's Pixera-4 media servers to process four MEs from the control desk, which were then fed as multiple video inputs into Disguise GX-3 media servers. Support from AV Stumpfl, Disguise, and Solotech ensured the redundancy needed for such an environment. „This residency in Munich is unique and has surpassed anything comparable“, says Ian „Woody“ Woodall, Director of Global Touring & Special Projects at Solotech.

Cory Fitzgerald began his work for Adele in 2022 during her extended residency in Las Vegas and also designed the lighting for her BST Hyde Park shows in London the same year. The idea of a massive, seamless curved screen was already set and served as the central starting point for the lighting concept. Due to its fully custom construction, detailed collaboration with other technical departments early on allowed the planning of spotlight towers, elevated fixture positions, and extensive ground lighting.

The screen and the vast audience area demanded bright and powerful fixtures. Fitzgerald quickly decided to use Robe iForte LTX for illuminating Adele as she moved through the space. „Lighting was crucial to recreate part of the theatrical style and atmosphere from Las Vegas in this completely new and different context“, he explains. He aimed to harmoniously blend the drama of the bespoke grand opera costumes with the video elements, including IMAG and playback.

Lighting the show during daylight, twilight, and darkness was another challenge. The designer chose Robe Forte for its brightness and quality for exposed lighting positions, including fixtures along the stage edge.

A total of 112 iForte fixtures for key lighting were mounted on 11 FOH towers in groups of 8 to 12 per tower, positioned between approximately 15 and 130 meters from the stage, depending on the stage position to be lit. Twenty-five iForte LTX units were operated with a tracking system, and two additional units with two remote-controlled Robospot systems, providing maximum flexibility. Up to 18 iForte LTX fixtures were used simultaneously to combat sunlight on certain days. „Originally, I wanted a few more“, Fitzgerald says, „but the results - combined with about 2,000 other fixtures in the rig - created a perfect visual collage, so I'm absolutely satisfied.“

Thirty-six Forte fixtures were positioned around the structures to illuminate the band. The thirteen iBolt fixtures were added late to the lighting

plan because Fitzgerald was eager to use Robe's new 500W white light laser fixture. Five iBolts were mounted on the two scroll towers at either end of the screen, and three more in the center of the stage, creating counter-light effects.

They provided a cool backlight and stylish camera look for the live mix by Matt Askem, the show's creative director, complementing the impressive architectural installation with large, intentional looks. „They're super bright, highly controllable, have many options, great gobo effects, and simply dominate everything“, says the designer.

He also used 125 Ayrton Cobra and 85 Ayrton Domino profile fixtures with IP65 certification. The Domino profiles were positioned in the overhead stage structure and the rear stage area. Fitzgerald used them practically everywhere, from stage and audience lighting to aerial effects. „But it was the ground row of Dominos that did the main work at the stage floor, creating a light horizon behind the band and Adele, as well as large beam and breakup effects in the camera background.“

Laser-based Cobra fixtures were positioned along the central and side catwalks and the B-stage. Fitzgerald used them as beam lights for graphic patterns in the night sky and for textures to create breakup effects. „A special moment was the song 'Hold On', when the Cobras and searchlights beamed through the crowd and then formed a huge geometric pattern in the sky. We had already used the Dominos in Las Vegas and decided to bring them to Munich because of their versatility.“

Nick Van Nostrand served as the lighting director for Munich, working with programmer Davy Martinez, who was also responsible for the lighting during the previous residency in Las Vegas. „We learned from Las Vegas how to use the size to our advantage“, says Fitzgerald, praising crew chief Keith Johnson and Neg Earth's system technician Joao Magalhaes for their outstanding work.

In addition to Clair Global and Neg Earth Lights, other service providers were involved. Stageco (black steel) and Tait (automation and staging) built the structures, while Larmac Live provided creative production for the extensive public area „Adele World“, which was part of the 75,000-square-meter stadium site.

## Adele World, 2nd Stage + More

In addition to the unique pop-up stadium, the outdoor area of Messe München was also used during the ten shows, featuring the specially con-

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structured temporary „Adele World“. „The grounds were opened for guests at 3:30 PM. Outside the arena, within the separate Adele World, there was a massive food and beverage area (beer garden, wine bar, various food stalls, etc.), merchandise stands, Instagram points for influencers, and a small second stage that featured smaller acts, including DJs, magicians, a Spice Girls cover band, and karaoke to entertain guests before and after the main show“, explains Raphal Demonthy, who was responsible for the lighting design of this area.

Florian Wieder not only designed the stadium but also planned the surrounding areas, developing various decorative and set elements that incorporated lighting as a signature feature.

„The back walls of the four approximately 120-meter-wide grandstands were equipped with massive illuminated Adele lettering, provided by the set and decoration builder Unbranded. Beneath these were double rows of Martin VDO Sceptron 10 with diffusers, which ran along the sides of the grandstands“, Demonthy explains. „To connect the grandstands, five approximately 30-meter-wide portals were built, featuring light strips on both the upper and lower sides. This created a unique floating visual element between the grandstands. The lower strip used Acme Pixelline IP fixtures, while the upper was equipped with Martin VDO Sceptron 10 fixtures.“

The setup was complemented by ambient lighting for the corridors beneath the grandstands, stairwells, and the 118-meter-wide entrance portal located across the street. This lighting not only provided visual appeal but also ensured safe passage through the walkways. Astera Titan Tubes were used for this purpose, while Proteus Maximus fixtures provided lighting for the entrance portal.

Demonthy was also responsible for the lighting of the second stage: „We implemented a simple small festival setup consisting of Martin Mac Aura PXL, Acme Lyra, Martin Mac Viper, and Portman S-Tribe fixtures, as well as a small number of Astera NYX Bulbs.“

Since most of the equipment, particularly for the grandstands and portals, had to be installed invisibly, meticulous planning and precise installation were essential. This required extensive coordination with various contractors, including Nussli for the grandstand and portal construction, Unbranded for the portal cladding, and site utilities such as power suppliers.

In total, the lighting designer, along with LD Assistant Oliver Klaus and lighting operator Marc Marlo Schelesnow, deployed the following equipment in their section: 1518 Martin VDO Sceptron 10 (1000 mm),

164 Martin VDO Sceptron 10 (320 mm) for the back wall and portals, 288 Acme Pixelline IP (portals), 548 Astera Titan Tubes (corridors and stairwells), and 50 Elation Sixpar 200 IP (stairs). The entrance portal featured 10 Elation Proteus Maximus fixtures. The second stage was outfitted with 8 Acme Lyra, 6 Martin Mac Viper Performance, 23 Martin Mac Aura PXL, 8 Martin Mac Aura XB, 11 Portman S-Tribe, 9 Roxx Cluster B4 FC, 18 Astera NYX Bulbs, and 16 Elation Paladin. Christie Lites Germany served as the technical service provider for the lighting implementation.

Through ten concerts under varying weather conditions in Munich, Adele demonstrated how impressive a stadium experience can be. She later shared her thoughts on social media, saying: „It was the best atmosphere ever. I have never seen anything like these shows; it was truly spectacular. It was an honor!“

## Core Team

**Production:** Leutgeb Entertainment Group & Live Nation

**Creative Director:** Matt Askem

**Show Director:** Kim Gavin

**Production Director:** Paul English

**Lighting Designer:** Cory Fitzgerald

**Stage Design:** Stufish

**Production + Set Design:** Florian Wieder

**Video Content Design:** Treatment Studio

**Special Effects:** FFP

**System Engineer/Crew Chief:** Johnny Keirle

**Monitor Tech:** Thomas „Chip“ Valentino

**FOH Engineer:** David Bracey

**Monitor Engineer:** Joe Campbell

**System Technician:** Juan Beilin

**2nd Monitor Technician:** Eiran Simpson

**Comms and Network H.O.D:** Patrick Taghavi

**PA Tech:** Brooke Paterson

**PA/Network Technician:** Jay Walton

**PA Technician:** Claus Koppelin Orran

**Comms and Network Tech:** Elmar Dizon

**Comms Tech:** Steve Murray

**Adele World Lighting Design:** Raphal Demonthy



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## The „Thirty, Rough & Dirty“ storm

Lighting designer Andre Beekmans from the design studio „The Art of Light“ provided the lighting for the 30th anniversary tour of the techno pioneers Scooter, who performed with their latest album and Jay Frog, who had rejoined the band.

Beekmans' technical rider included various moving lights from Robe: 78 Pointe, 45 Spider, 82 Tetra2, and three Forte, which were used as follow-spots with a remote follow-spot system. „My extensive choice of Robe fixtures was due to several features: speed, functionality, and robustness. Especially in this music genre, the performance of every lighting set is crucial“, explains the lighting designer.

Andre Beekmans, whose clients include Armin van Buuren, Afrojack, and several other high-profile artists, began his collaboration with Scooter in 2022 on their stadium tour through the German-speaking region.

For the „Thirty, Rough & Dirty“ tour, the designer based his lighting design on the stage design by Maarten Hoogland. This consisted of six large LED screens with LED headers, which essentially defined the positions of the spotlights. However, Beekmans also filled in all the other gaps with spotlights, particularly on overhead trusses between the LED screens.

„I specified spotlights that I know can keep up with the fast pace of the music. Additionally, it was important that they were bright enough to compete with the large number of LED screens on stage“, says Beekmans.

Before planning the design, the designer also spoke with Scooter's lead singer and mastermind Hans Peter „H.P.“ Baxxter. „H.P. is very 'light-aware' and knows how important lighting is for every show. He really likes it when the lighting on stage has a big impact, and he has a good feel for how to emotionally engage the fans.“

The 82 Tetra 2 fixtures framed the stage and all the LED walls, creating impressive framing effects with tight beams. They also allowed for fast movements, producing sweeping, bar-like light beams through the audience area, both upwards and downwards. „The many fixtures complemented each other perfectly and were the ideal choice to create different light levels“, he explains.











Since the team had the opportunity to work in the TDA Clair facilities in Bottrop ahead of the tour, they were able to create many cool and perfectly matched looks with the Tetra 2s and get the most out of the features of the fixtures.

The lighting designer played with various zoom effects to create fine, almost laser-like beams that quickly expanded into large, massive washes that engulfed the entire stage. He also used the flower effect of the Tetra 2, which added another dimension to the show.

„Scooter shows are very colorful and lively. With the Tetra 2, I was able to create some really impressive visual effects“, says Beekmans.

With nearly 80 Pointe fixtures, he was also able to produce breathtaking looks, effects, and moments, as they combine rich beams with fast movements. Spiders have long been one of his favorites and are present in most of his designs. In this case, they were arranged in a matrix grid above the central LED screens. During the large shows, they were used as beams or zoomed out to bathe the entire stage, the band, and the dancers in soft, rich colors.

Two of the three Forte fixtures were positioned on the front truss, with one in the middle. All were connected and used as follow spots through a follow-spot system.

The show was mostly controlled via timecode, which made operation a bit more flexible. Andre Beekmans programmed the show and attended

the first six concerts before passing the baton to Rik Verschuren as On-the-Road Lighting Director and Operator, while Maxim Rath accompanied the band at all the summer festivals - both are employed by The Art of Light.

Scooter played at festivals during the summer, each requiring a design adapted to the specific setup. In the fall, they went on an arena tour through the UK, followed by an arena tour through Germany. In addition to lighting operator Rik Verschuren, the core team also included sound operator Timo Hille, VJ Susanna Van Dongen (Veemee Visuals), and production manager Basti Duellmann.

Ahead of the sold-out tour finale of „Thirty, Rough & Dirty!“ at the Lanxess Arena in Cologne, Arena managing director Stefan Löcher met with the band in the artists' dressing room and presented them with the Sold Out Award from the Lanxess Arena.

**Setlist:** Rave & Shout/Maria (I Like It Loud)/Techno Is Back/We Love Hardcore/Mom Was On Tequila/FCK 2020/ARDRHU/For Those About To Rave/Weekend!/Waste Your Youth/Bassdrum/Nessaja (Peter Maf-fay)/We Are The Greatest/Frequent Traveller/Bramfeld/Fire/Call Me Ma-ñana/How Much Is The Fish?/God Save The Rave/Ramp! (The Logical Song)/Paul Is Dead/Non, Je Ne Regrette Rien (Edith Piaf snippet)/J'adore Hardcore/Jumping All Over The World – One (Always Hardcore)/Hyper Hyper/Endless Summer/Friends/Move Your Ass!





# The Lord of the Ring

Visual designer Mikki Kunttu was part of the creative team that realized „Götterdämmerung“ at the Finnish National Opera in Helsinki in the summer of 2024 – the final work in their staging of Wagner’s epic „Ring des Nibelungen“ (The Ring Cycle)



Kunttu designed the lighting, video, and set design, and also programmed both the lighting and video components of the production using a GrandMA3 system. The control for all four „Ring“ operas („Das Rheingold“, „Die Walküre“, „Siegfried“, and „Götterdämmerung“) was managed through MA systems, with Kunttu using the GrandMA3 entirely for the final work. This was made possible by the opera house’s transition from GrandMA2 to GrandMA3 in the summer of 2023. The previous „Ring“ productions - „Das Rheingold“ in 2019, followed by „Die Walküre“ in 2022 and „Siegfried“ in 2023 after pandemic delays - were created with GrandMA2 or a combination of GrandMA2 and GrandMA3 for previsualization and production.

In the past year, Kunttu also started using the GrandMA3 for other design projects. The GrandMA3 system for „Götterdämmerung“ consisted of: 2 GrandMA3 full-size, 1 GrandMA3 light, 1 GrandMA3 on PC Command Wing XT, 2 GrandMA3 Processing Units XL, 2 GrandMA3 2 Port Nodes, 28 GrandMA3 4 Port Nodes, and 6 GrandMA3 8 Port Nodes - all owned by the opera house.

Kunttu also utilized the opera house’s in-house lighting setup, which for „Götterdämmerung“ included 237 moving lights from three different manufacturers - Martin, Varilite, and Claypaky - as well as fog and haze machines. All of them were controlled through the GrandMA3 full-size console. Additionally, eleven Green-Hippo media servers were controlled through the GrandMA3-light console, playing content to six projectors, multiple LED screens, and fifty pixel-strip fixtures.

The „Ring des Nibelungen“ project occupied Kunttu from the first conversations in 2016 until the performance of „Götterdämmerung“ - nearly eight years in total. He received the commission from Lilli Paasikivi, the artistic director of the National Opera. The creative team for the „Ring“ included Kunttu, director Anna Kelo, and costume designer Erika Turunen. The musical directors for the various parts of the „Ring“ were Esa-Pekka Salonen, Susanna Mälkki, and Hannu Lintu.

The overall design across the three fields of lighting, video, and set design aligned with Kunttu’s preferred working method. The „Ring“ still presented challenges for him, such as clearly and powerfully conveying messages to the audience while maintaining the immense complexity of the work. „The bigger the project, the more I focus on the essentials“, he

says. „Wagner wrote many visual instructions into the libretto, and in many ways, we had no reason to contradict him.“

Kunttu developed a concept in which the main stage elements remained the same throughout all four productions, while the scenes and visual variations were inspired by or complemented the main themes. „Scene-specific ideas for set, lighting, and video elements are not really the core approach for this version of the ‘Ring’.“

The central physical elements consisted of five black towers, which were used in all productions to create the desired environments and spaces. Each tower held a large LED screen. „Basically, a tower was a transparent stage element that could be rotated in any direction“, Kunttu explains.

After decades of using MA systems for lighting control and his now-complete transition to GrandMA3, he says: „It’s a big step forward. Of course, there’s a learning curve, but it’s absolutely worth it. There’s no going back because there’s nothing I miss from the old GrandMA2.“

As a designer who programs most of his shows - both lighting and video - himself, he has a unique perspective on how a desk, as a tool, should foster imagination and artistic expression. Practical functions, which are repeated hundreds of times every day, make a big difference in the programming time required. Features like the ability to program and customize encoder layouts are especially appreciated by Mikki Kunttu.

He also emphasizes that the GrandMA3 is excellent for controlling video and media servers. Programming for opera or theater is radically different from concerts, music shows, or TV productions. „Opera is more about fine-tuning and finding the right nuances and details“, says Kunttu. „Flexible and programmable views, tracking sheets, macros, and so on are critical, more than some of the more playful functions.“

The „Ring des Nibelungen“ is, with a total of sixteen to seventeen hours of music, perhaps the most ambitious and extensive work that an opera designer can create. Kunttu enjoyed the opportunity to work with the team on-site and be involved in the production of this critically acclaimed work. The opera house’s lighting team included lighting managers Kimmo Ruskela and Tommi Härkönen, deputy lighting manager Gabriel Phillips-Sanchez, lighting operator Tommi Saviranta, and video operators Heikki Riihijärvi and Jani Virmavirta.













## The imperfect

When looking at the works of Finnish visual artist and designer Mikki Kunttu, one notices a sophisticated blend of light and darkness as well as the interplay of shapes and space. Kunttu has worked for Cirque du Soleil, the Eurovision Song Contest, Walt Disney, the band Nightwish, and designed „Der Ring des Nibelungen“.

In his more than thirty-year career, the multiple award-winning designer, who interestingly sees imperfection as inevitable and even essential for the creative process, has always focused on fine-tuning even the smallest details of a project in order to create outstanding works in dance, theater, opera, TV productions, and large events, all of which consistently feel warm and engaging.

Kunttu's influence on the design world was so significant that, in celebration of his fiftieth birthday, a four-day event titled „In The Light – Mikki Kunttu“ was held at the Tampere Hall, attracting prominent lighting and set designers from around the world. Despite a full schedule, Kunttu took the time to share insights into the philosophy that has shaped his career. A quote by Salvador Dalí fits his story: „Don't be afraid of perfection, you'll never reach it.“ In reference to Mikki Kunttu, one could say: „Don't be afraid to lose imperfection, it will always be there to inspire you.“

**When working with light, darkness and shadow play just as important a role in the creations. What quality does darkness add to a design?**

**Mikki Kunttu:** Of course, there are many ways to approach this question. The first is the somewhat metaphorical element that relates to the dark side of history, the dark side of the mind, the dark side of the world - and for me, this is usually the more fascinating perspective when creating visual elements for the stage. On the other hand, light, as a physical phenomenon, must be surrounded and contrasted by darkness on the stage. Without darkness as a companion, light does not unleash its full power. In my world, ultimate inspiration and unlimited possibilities lie in the darkness. As soon as the first light turns on, some possibilities are chipped away. For me, light design is always subtractive, and the real question is what you want to bring out - not what you want to show.

**Is there a difference between black space compared to dark gray or shadowy space?**

**Mikki Kunttu:** I see total blackness or complete darkness as the best possible manifestation of perfection. Grayscale is, from this perspective,

already a compromise. But perfection is never interesting if it is not contrasted by a compromising element, which in this case would be light, grayscale, energy, and brightness. On the one hand, I often observe the stage during the creation process and check if and when the image becomes too washed out and loses its contrast, which usually means that the urgently needed black layers of space are being destroyed by unnecessary grays, often caused by unwanted light pollution.

**Do you look first at where the light is placed, or where the darkness remains?**

**Mikki Kunttu:** I don't think I can answer that directly. I think the elements of darkness and contrast are always an important factor in all decisions, especially in the early stages of the design process.

**Given the success: Why not rely on proven formulas and take risks to try new directions - hungry ambition or a sense of adventure?**

**Mikki Kunttu:** A strange question. I would feel like a total failure if I kept working after a „proven formula“ - if such a thing even exists. Of course, every designer has their own style and naturally tends to repeat certain elements that reappear in productions over the years. But this is more about one's own style and the particular quality of design - regardless of the genre. I have always been interested in the creative process and have a core desire to strive for something new, something unknown. It would be very easy to lean back after a few successes and think that I've „made it“. In reality, you never want to „make it“. A creative approach means being a little lost most of the time.

**In this sense: What can imperfection add to a design?**

**Mikki Kunttu:** Perfection in any form is not interesting at all. It manifests something machine-like and sterile. The most touching works of art have a strong emotional factor that imperfection often perfects. It then becomes a different question of where and how imperfection can and should appear in a specific work. That is perhaps one of the central questions for the artist.









**Looking at the dance sector: How does the physicality and personality of a dancer affect the way lighting design is approached for a dance performance?**

**Mikki Kunttu:** The best productions I've seen have always been closely tailored to the talent and personality of the dancer or dancers as well as the collaborators. This approach potentially also suggests a very collaborative method. In an ideal scenario, each individual feels both challenged and strongly supported through collaboration, and the artistic demand arises from everything we all bring into the mix. Creative work is not really different from playing as a child: ideally, everyone in the group is invited to join in, to create, and to flow together. In the end, everyone in the group must be the director of their own part (lighting, sound, costumes, direction) so that things don't fall apart.

**Many designers have never worked in the dance sector. Are there any advantages in this work that might be useful for designers in the concert tour world?**

**Mikki Kunttu:** The way I view talent on stage has had a significant influence on me. By that, I mean everything that is NOT expressed through words, such as the way a person moves, the relationship between the performers, and the relationship between the performers and the space. I always pay close attention to the interplay between static and movement: sometimes the song is in motion, and the visual scenery sets the opposite by being very static. From this perspective, moving lights have become a big curse for some of the most charismatic artists. Working with dance teaches you to do less with your equipment and to convey your message more through the bigger picture and the visual style of the show.

**Does design for a dance performance differ from that for an opera?**

**Mikki Kunttu:** Design for dance is generally freer. I don't mean that it's better or that I would prefer it over opera, but it is different. I like both. Working with non-verbal expression is just closer to the core properties of light.

**So lighting is not just for the eyes but also to support the action and give it perspective. What exactly does this mean?**

**Mikki Kunttu:** If the goal is just to deliver great shows and nothing beyond that, it quickly gets boring - at least from my experience. I had to start diving deeper into projects at a young age, because otherwise, the job would have gotten boring very quickly.



**Examples of this statement were a few years ago with some breathtakingly beautiful and colorful panoramas for The Snow Queen in Tampere. Was there a guiding vision for this project?**

**Mikki Kunttu:** What a beautiful project with a dream team! The design process was pretty straightforward. It was a show on the scale of an ice hall, which I wanted to deliver as a 360-degree stage to maximize capacity. The main focus was on the video projection, with the sets and lighting meant to support it. In The Snow Queen, I also wanted the upper tiers of the arena to have the best seats in the house, which was achieved through projections. The video content served as a sort of virtual backdrop, while the visual elements provided the supporting energy.

**Do technological advancements, AI, or others influence a designer's work?**

**Mikki Kunttu:** AI will presumably have a massive impact on everything we do. However, I think AI cannot replace ballet or human collaboration in art. As this type of technological development accelerates, it will become increasingly important for designers to find their own voice. In my case, I was already drawn to theater early on. I enjoy the community and collaborative effort of creating new productions. Of course, there has always been an inner, irresistible urge to create something of my own. Despite my education in accounting, this was probably the only somewhat crazy path.

**What influence has growing up in Finland had on your development as a designer?**

**Mikki Kunttu:** How would I know? Since I have no comparison, it probably influenced me 100%. Finland was a fantastic homeland for me, and I have the highest regard for all the people I met, especially in my early days in theater, because they helped me and supported me in everything. These are the people you never forget.

**Is there a project that was so influential that it stands out from all the others?**

**Mikki Kunttu:** My most important experience is the more than thirty-year collaboration with choreographer Tero Saarinen - since 1993. Apart from that, I've been fortunate enough to work with so many different, talented people for such a long time.

Source:  
[www.chauvetprofessional.com/news/mikki-kunttu-imperfect-light](http://www.chauvetprofessional.com/news/mikki-kunttu-imperfect-light)







## All summer long

Under the leadership of Account Executive Dave Compton, Britannia Row Productions provided audio technology throughout the „Summer Carnival“ world tour of Pink. The tour began in June 2023 in England and will conclude in November 2024 in the United States, with nearly three million visitors in total.











Audio Crew Chief Guillaume Burguez has been working with Britannia Row since 2010. The colorful, perfectly choreographed „Summer Carnival“ show includes many acrobatic stunts for which Pink is known. At the FOH mixing desk was Stephen Curtin, who is very familiar with the capabilities of the Clair Global Group when it comes to tours of this magnitude: „The huge global resources gave us the confidence that we could respond quickly to changes or problems - anywhere in the world“, he says. „That was very reassuring for me as an engineer. I would inform Guillaume about issues and requests, and by the end of the day, a solution would always be in progress.“

To keep things „simple and consistent“, Curtin used a Digico SD7 Quantum, with 95 percent of his dynamic signal processing done directly at the mixing desk. „In my rack, I had Smart-Research-C2 compressors and a Sonic-Farm-Creamliner for processing the master

bus, a Neve 5045 for the BGV bus to reduce stage noise in the microphones, a sparingly used DBX 120A for additional depth, and two SSL Fusions for the guitar and drum buses. For effects, I used Live Professor.“

Curtin emphasizes that d&b audiotechnik has always been his preferred PA brand: „I think it is the most musical PA system. For this tour, we chose a mix from the SL series: KSL 8 for the main arrays, GSL 8 for the side arrays, J-Subs as flown subwoofers, and SL-Subs for floor support. Additionally, we used Y10p as frontfills. For stadium delays, we used exclusively KSL, mostly KSL 12.“

The design of a system that works in both stadiums and halls was developed by Curtin in collaboration with system engineer Arno Voortman, while PA technicians Malcolm Secright, Bernard Gandy, and Zachary Hensley, along with PA and stage technician Alison Alvarez, were responsible for the daily setup and



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tuning. Technician Jon Reynolds was in charge of communication and delays.

„Arno and I have been working together forever, and we both have the same goal: a uniform, consistent coverage throughout the venue“, explains Curtin. „Stadium shows are always challenging since no two stadiums are the same - some have better acoustics than others. But by fully utilizing d&b’s array processing functions, we were able to achieve the best results. Arno is brilliant at designing PA systems that make my mixing easier.“

However, according to Curtin, the most important factor is the team: „The greatest asset in our industry is the people we tour with. It’s crucial to have the right crew - both personally and professionally. I don’t think any production manager would see it differently. We need to trust each other because we can’t do everything on our own. That trust is more important than any equipment.“

The size of this tour required two monitor engineers. Pink’s right hand on stage was Jon Lewis, who has been working with the artist for eleven years. Lewis explains that her acrobatic stunts always represent key points for her personal mix and the complexity of the setup. „It’s important to adapt the mix to the artist“, he says. „No matter where she is during the performance - you need to be with her there and boldly adjust what is needed in the moment, whether it’s a flight in front of the PA, high above the crowd, a bungee jump from the roof, or simply at center stage.“

Lewis manages the singer’s monitor mix with a Digico Quantum 7. „I like the workflow and the ability to adapt the surface layout to the situation, which is extremely important in such a demanding show“, he says, adding that working with Clair Global and Britannia Row has always felt like family throughout his entire touring career - whether with AC/DC, David Gilmour, Peter Gabriel, or Pink.



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For his current setup, Lewis uses a Bricasti M7 for effects and Drawmer-1973 compressors for inserts. „I love the Drawmers, they provide excellent multiband processing for the in-ear output“, he says. For in-ears, the team switched to Wisycom at the beginning of the tour - according to Lewis, „a real game-changer: With the master-to-slave function and RF over fiber optics, we could cover the entire stadium.“

Covering large outdoor venues from an RF perspective requires a lot of planning. „Emma-Jane Lee and Jack Murphy, who were with us on the last two world tours, take care of RF“, explains Lewis. „They’re always near the artist to make changes to in-ears and microphones as needed.“

For the entire team’s mix, band monitor engineer Horst Hartmann had numerous stereo and mono mixes: eight stereo mixes for the musicians and seven technician mixes. Additionally, he created mixes for the pyrotechnic team, the teleprompter, and the sign language interpreters to ensure consistent communication with the fans.

„None of the musicians had a complete mix with all instruments at the same intensity“, says Hartmann. „Almost every song required a different mix, but I programmed scenes and synced them to timecode. During the

show, there were only a few solo parts that I had to adjust, and daily fine-tuning. Our three background singers had to be 10 dB above everything else, plus reverb.“

For his complex mix requirements, Hartmann used a Yamaha Rivage PM10 mixing desk with a DSP-RX-EX module, two RPiO 622, an RPiO-222 I/O rack, and a Neve RMP-D6 Dante microphone preamp for the B-stage. „I like the workflow and the sound of the PM10. It’s a fast and straightforward mixing desk“, he says. „For wireless in-ears, I used eighteen stereo channels from the Sennheiser 2000 series. Our drummer had a small mixer and received a wired stereo mix as well as a separate click signal. For subwoofers, I used two self-powered Cohesion CP118+ compact units, and for the bassist and the two keyboardists, I had eight passive ButtKicker subwoofers.“

## Setlist 2024

**Act 1:** Get The Party Started/Raise Your Glass/Who Knew/Just Like A Pill/What About Us (Dance Remix)/**Act 2:** Heartbeat/Turbulence/Glitter In The Air/Make You Feel My Love (Bob Dylan)/Just Give Me A Reason/Fuckin’ Perfect/Just Like Fire/Heartbreaker (Pat Benatar)/**Act 3:** Please Don’t Leave Me (acoustic)/Cover Me In Sunshine (acoustic)/Do-





n't Let Me Get Me (acoustic)/When I Get There/I Am Here/What's Up?  
 (4 Non Blondes)/Act 4: Are You Gonna Fall?/Trustfall/Blow Me (One  
 Last Kiss)/Never Gonna Not Dance Again – So What

## „Summer Carnival“ Tour

June 7, 2023 - November 23, 2024

Number of Shows: 97

„Summer Carnival“ was the eighth concert tour of American singer Alecia „Pink“ Moore. The tour began on June 7, 2023, at the University of Bolton Stadium in Bolton, England, and ended on November 18, 2024, at Camping World Stadium in Orlando, Florida. According to tour organizer Live Nation Entertainment, no artist had sold as many concert tickets in Australia as Pink for her Australia dates in the Summer Carnival tour. Australian ABC News also reported that Pink's concert in Townsville on March 22, 2024, sold out „within sixteen minutes of ticket sales opening“, causing accommodation prices in the city to explode. Claudia Brumme-Smith, CEO of Townsville Enterprise, told the news agency: „We saw over 60,000 people trying to get tickets.“ Estimates suggest that the two concerts brought nearly twenty million dollars into the region's economy.

300 million dollars

Billboard reported that during the European leg of the tour, the singer sold 871,000 tickets and grossed \$106.8 million. In North America, she grossed \$150.7 million from 914,000 tickets sold. According to Forbes, the Summer Carnival tour alone grossed about \$300 million from 37 shows by August 2023. In December 2023, Pollstar reported estimated earnings of \$231,681,720 from 39 out of 44 concerts, making the Summer Carnival the eighth most successful concert tour worldwide and the fifth most successful concert tour in North America in 2023, with estimated earnings of \$182,629,816 from 30 out of 33 concerts. In November 2024, Billboard reported that Pink had sold approximately 4.8 million tickets over the entire Summer Carnival tour, generating total revenue of around \$584.7 million.

Opening acts on the Pink shows included Pat Benatar, Brandi Carlile, Sheryl Crow, Noga Erez, Viki Gabor, Gayle, Neil Giraldo, Grouplove, KidCutUp, Margaret, Alice Merton, Rag'n'Bone Man, Sam Ryder, The Script, Gwen Stefani, and Tones and I.

Source: [www.pinksummerncarnival.com](http://www.pinksummerncarnival.com)





## Credits

**Lead vocals:** Pink

**Musical Director & Keyboards:** Jason Chapman

**Guitar:** Justin Derrico

**Keyboards & Vocals:** Adriana Balic

**Bass Guitar & Vocals:** Eva Gardner

**Drums & Percussions:** Brian Frasier Moore

**Vocals:** Stacy Campbell, Nayanna Holley, Dani Moz

**Management + Tour Producer:** Roger Davies for RDWM, Dane Hoyt, Shady Farshadfar, Lisa Garrett, Nikki Mestrovic, Nik Tischler, Jose Gomez

**Tour Coordinator:** Bill Buntain for Bonus Management Inc.

**Production Manager:** Malcolm Weldon

**Set & Lighting Design:** Baz Halpin

**Lighting Programmer:** Dan Norman

**Video Programmer:** Mane Conde

**Associate Production Designer:** Vincent Richards

**Aerial Creative Design:** Drea Weber

**Co-Creative Producer/Director Video:** Gabriel Coutu-Dumont

**Creative Producer/Director Video:** Janicke Morissette

**Project Manager Video:** Eric Lavoie

**Artistic Director Video:** Andréanne Dumont

**Artistic Director/Lead Animator Video:** Melanie Martin

**Lead Notch Integrator Video:** Heath Saunders

**Musical Director:** Paul Mirkovich

**Artist Tour Manager:** Nik Tischler

**Artist Road Manager:** Charney Marshall

**Band & Dancers Tour Manager:** Nancy Shefts

**Band & Dancers Road Manager:** Bales Karlin

**Stage Manager:** Greg Bogart

**Carpenter:** Christopher „Chris“ Woo

**Stage Manager:** Gilbert Castilleja

**Production Coordinator:** Bradley Kline, Clarence Gaoiran

**Monitor Engineer:** Jonathan Lewis

**FOH Sound Engineer:** Stephen Curtin

**Band Monitor Engineer:** Horst Hartmann

**Teleprompter/PA:** Patrick Grover

**Lighting Director:** Steve „Six“ Schwind

**Lighting Crew Chief:** Matt Lavallee

**Dimmer Technician:** Anthony Michon

**Network Technician:** Benoit Paille

**Lighting Technicians:** Sarah Ng, Anthony Cerasuolo, Colton Cowan, Eric Marshall, Jed Brooke, Cassandra Anderson, Jean-Philip Blier, Zachary Hair, Anthony Hannah, Gregory Kocurek, Mel Johanson,

**Video Engineer & Crew Chief:** Paul Tikalsky

**Server Technician:** Colleen Wittenberg

**LED/Camera Operators:** John Millman, Gavin Thomson, Tyson Raw, Victor Davis, Michael Gardner, Jay Strasser, Alan Shields

**Video Director:** Larn Poland

**Video:** Ashley Williams, Liselle Bertrand, Adam Karasik, Brian „Bubba“ Ressa, Clifton Jackson, Joseph Johnston, Furio Ops, Colin Mudd

**Cameraman/Projectionist:** Nicholas Weldon

**Head Rigger:** Gabriel „Gabe“ Wood

**Rigger:** Leonardo Baca, Bryson Duheaney, Katie McDonagh-Fuhrman, Katie Delia, Daniel Porter, Sean Mullarkey, Roscoe Randall, Austin Odum

**Head Pyro:** Kenneth McDonald

**Pyro:** Amanda Pindus, Joshua Brea, Renato Sulmona

**Head Carpenter:** Julie Lebeau

**Carpenter:** Jason Star, Jamie Pharand, Lucas Lejeune, Pearce Dion, Jonathan Bell, Nepolian Castilleja, Adan Maldonado, Walter Hughes, Adie Ikor, Willie Adams Jr, Xavier McGregor

**Audio Technician:** Alison Alvarez, Sarah Blakey, Arno Voortman, Guillaume Burquez, Andrew Pitcarin, Andrew Nolish, Malcolm Secright, Jon Reynolds, Jack Murphy, Beth O'Leary

**Audio System:** Clair Global/Britannia Row Productions

**Lighting & Video System:** Lee Moro (Solotech)

**Lighting Programming:** Early Bird Visual

**Technical Producer:** Eric Marchwinski, Kirk J Miller

**Lighting Programmer:** Dan Norman

**Screens Programmer:** Manuel Conde

**Set Construction & Automation:** Tait

**Staging Project Manager:** Logan Lower

**Senior Project Manager:** Brian Levine

**President & CEO:** James „Winky“ Fairorth

**Rigging:** Five Points Production Services

**Trucking:** Entertainment Logistix

**Tour Promoter:** Live Nation, PRK Dreamhaus

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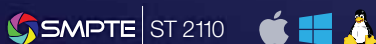
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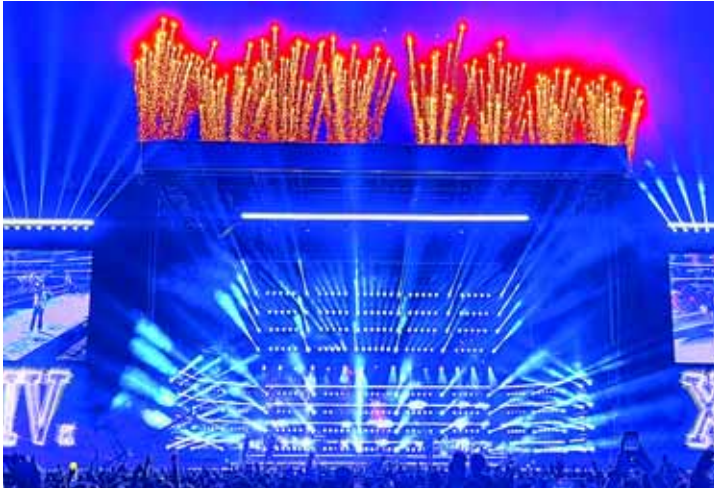


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## Mars' 24K Magic World

The impressive lighting design for Bruno Mars' live shows has been consistently provided by Whitney Hoversten for years, whether it be during Mars' eight-year residency at the Park MGM in Las Vegas or his sold-out stadiums worldwide.

For more than a decade, Mars has been one of the most successful artists in the music industry, with various hits across different genres and fifteen Grammy Awards. The demand for his performances is at an all-time high. The year 2024 began with seven sold-out shows at the Tokyo Dome in Japan, followed by performances in Mexico and Asia, the opening of the new Intuit Dome in Inglewood, California, and regular performances in his Las Vegas residency. In the fall, he performed in Brazil with a record-breaking number of shows and will once again finish the year in Las Vegas.

Hoversten has been involved for almost eight years, and his role has evolved. Today, he wears many hats, including that of a production designer, and describes this year's journey as less of a tour and more of a series of constantly evolving one-off shows. He notes that the current setup has evolved from the „24K Magic World“ tour, one of the most successful tours of all time. Although Mars' popularity has grown since his debut album in 2010, he has only been filling stadiums in recent years. After performances at Allianz Stadium in Sydney at the end of 2022 and a series of sold-out shows in Japan, the rise has been rapid, according to Hoversten, and stadiums quickly became the new „standard“. However, the design still had to be constantly adapted to existing infrastructure, and programming had to be adjusted accordingly.

As more stadium shows were added to the tour dates, it became clear that Hoversten would need to elevate the lighting concept to true stadium scale. At the end of 2023, he and production manager Joel Forman decided to develop a separate stadium design. „We had to modernize the design - everything from the overall shape to the lights we used“, explains Hoversten. „Since we were playing in more and more outdoor arenas, the IP rating became crucial, especially for our shows in Brazil. That's when I came across the Elation Proteus Rayzor 760. I thought it was perfect for the next phase of our 'show evolution.'“

Given their busy schedule, the designers knew they would never have a long rehearsal period or extensive programming time. In fact, they on-

ly had a few days to clone and reprogram the show with the new lights. The limited time also meant that Hoversten had to design a show that utilized existing elements and infrastructure instead of custom-built parts.

„Since we didn't have the luxury of 100+ shows to cover the costs of custom elements, we had to shape our design accordingly“, says Hoversten. „The equipment and design had to be adaptable for almost any venue, so logistics played a crucial role in the design.“ Fuse Technical Group is the lighting provider for Bruno Mars' shows.

The design evolution included a wall of 344 Proteus Rayzor 760 lights, which debuted during a series of performances at the Tokyo Dome in early 2024. The wall surrounds Mars and his band with additional lights mounted on six upper trusses. According to Hoversten, the design directly reflects feedback from Mars, as the artist places great importance on aesthetics and wants to ensure that every show has its unique moments. Social media influence also played a role: Mars wanted a background that looked good from every angle in the stadium on all digital platforms.

In the second phase of the redesign, Hoversten introduced 112 Proteus Hybrid Max lights to the wall and upper trusses. The Proteus Hybrid Max is an IP66-certified upgrade of the Elation Proteus Hybrid, which can be used as a beam, spot, or wash light. Hoversten adds that he also modified the Las Vegas residency at the end of 2023 with a similar design that included 387 Proteus Rayzor 760s and 32 Proteus Hybrid Max lights.

**Lighting Designer:** Whitney Hoversten

**Crew Chief:** Jorge „Soline“ Velasquez

**Spot/Network Tech:** Thomas Poje

**Dimmer Tech:** Ryan Lecomte

**FOH Tech:** Dominic Hickman

**Lighting Technicians:** Brian „Bubba“ Bukovinski, Victor Cruz, Jeremy Dehn, Juan Velasquez





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## In the heart of Münster

At the annual city event „Münster mittendrin“, the eponymous organizer acted cleverly and relied on mobile stages from Kultour.

From 2000 to 2011, the Eurocity Festival took place annually. It was a three-day open-air event in Münster’s city center, particularly popular for its diverse and high-profile live music acts on numerous stages. After a break due to financial reasons, the continuation of the city festival was celebrated in 2015 under the name „Münster mittendrin“. It is organized by the Münster mittendrin GmbH, a collaboration of ten Münster-based entrepreneurs. The headliners in 2024 included Kasalla, Antilopen Gang, Alle Farben, Clueso, and Donots, who celebrated their 30th anniversary in Münster with their „Grand Birthday Slam“.

As the saying goes, a picture is worth a thousand words, so here are just a few technical details to complement the images from this very popular event across the region: Only mobile stages from Kultour were used, provided and set up and taken down by various technical service providers.

On the Domplatz, the main stage was a Kultour Smart Stage 180 with a large 7.5 m portal (provided by Hockeypark). On the opposite side of the Domplatz, there were two stages for the VIP area: a Smart Stage 45 (from Fix-Zeltverleih via Mobilsound) and a Smart Stage 50 (from Mobilsound). At Lamberti Church, there was a Smart Stage 51 from PMA, at Syndikatplatz a Smart Stage 27 from Debug, and another Smart Stage 27 at Stubengasse (from Mobilsound). Additionally, on the Domplatz, there were two LED trailers (not our constructions) from Weyers Bühnenbau and LDT Veranstaltungstechnik.









# Twister in Riyadh

Lighting designer Thomas Giegerich (Bright Studios) collaborated with ESME Entertainment Services to use over 250 Elation Proteus fixtures to illuminate an art installation celebrating Saudi Arabia's Founding Day. The event in Riyadh commemorated the founding of the first Saudi Arabian state.

An Agal, a traditional band worn by Arab men to secure their headscarf, served as the central element of the art installation. Thomas Giegerich, Managing Director of Bright, created a dynamic light show visible throughout Riyadh. In collaboration with ESME Managing Director Alex Würfel, he orchestrated the light-

ing design using Elation's IP-certified Proteus fixtures, chosen for their adaptability to the often harsh environmental conditions in the Middle East.

Würfel, who acted as the event's technical director, recommended the Proteus fixtures: „At this time of year in Saudi Arabia, it's









less about possible sandstorms and more about the high likelihood of heavy rain, so the choice was easy for me.“ ESME also served as the lighting supplier.

Founding Day is a new annual holiday in Saudi Arabia, with cultural and artistic events taking place in cities across the country. In the capital Riyadh, celebrations were held at several locations, including at the King Fahad Library Park, where the Agal art installation was displayed.

„My idea for the art installation was to create a royal atmosphere, reminiscent of a crown, symbolizing the kingdom’s heritage“, explains Thomas Giegerich. „We surrounded the Agal with 120 Proteus Hybrids on the ground and 24 Proteus Excaliburs, which crowned the top - three light rings creating a striking contrast to the Agal’s square shape. The beams were visible from all over the city.“

The contrast between the beams of the Proteus Excalibur and those of the Proteus Hybrids added depth and contrast to the di-

splay. „We had chosen the Proteus Hybrid but wanted a really strong beam for a clear contrast, so we chose the Excalibur“, says Giegerich.

A special element, which the designer referred to as the „Twister“, involved tilting the three light rings while simultaneously swinging them to create a complex, overlapping spiral beam effect.

To further enhance the visual impact of the artwork, 60 Proteus Rayzor 760 fixtures were placed between each Agal rope. „The client was initially not convinced about placing lights at this location“, reveals Giegerich. „But we didn’t intend to create more beams or punch light, but rather wanted to achieve a sparkling effect (Spark LED) - and they liked it.“

An additional thirty Proteus Rayzor 760 fixtures adorned the facade of the King Fahad Library. A five-minute, music-synchronized light show ran every half hour.









# Reunion, one more time...

Originally announced as the „Reunion Tour“, the 2023/2024 world tour, followed by the „One More Time Tour“ by Blink-182, marked the American rock band’s 30th anniversary and their first tour with the original singer and guitarist, Tom DeLonge, since 2014.



The 360-degree arena shows featured pyrotechnics, LED screens, and stage designs powered by Hippotizer media servers from the TV One brand, Green Hippo. Two Hippotizer Tierra+ MK2 units were central to the technology, controlling four large LED screens mounted in a square formation above the performance area. These screens, made of Roe Visual CB8 LED panels, allowed for visibility from all sides. The displayed content was a mix of rendered visuals, IMAG, Notch effects, and integrated Hippotizer effects, with all content created by the Los Angeles-based production design firm Trask House.

Trask House also designed the show, while Vue Show Design handled the programming of the media servers. „The Hippotizer Tierra+ MK2 was perfect for this show due to its Notch Marks and the four outputs, which allowed individual or all viewports to be routed as needed“, says Bransen Black of Vue Show Design.

The stage featured a custom-made LED floor manufactured by SGPS. Black and his team used the Hippotizer Pixel Mapper to send data to the floor. „Green Hippo’s touring technician, Nick Lepoutre, spent two weeks mapping over 17,000 pixels“, says Black. „He had to carefully place all the pixels in the Pixel Mapper’s grid space and ensure proper data transfer from the server to the DMX nodes.“

The Blink-182 show was fully controlled using a GrandMA 3 console, mixing live-action footage with pre-recorded content, while the band played hits like „Feeling This“, „The Rock Show“, and „All The Small Things.“

„With a little creativity, you can achieve almost anything with Hippotizer“, says Black. „In fact, I hardly needed any support to create the dynamic looks for this tour, but if necessary, Nick Spencer, the technical product manager at Green Hippo, was always there to help and ensure everything ran smoothly.“ The Hippotizer media servers and LEDs came from NEP Screenworks.

FOH sound engineer Charles Izzo and monitor engineer Ray Jeffrey selected a variety of DPA microphones for vocals and instruments. For DeLonge’s and bassist Mark Hoppus’s vocal microphones, Dfacto 4018VL were used. On Travis Barker’s drum kit, the 4055 Kick-Drum microphone, 2011 Twin Cardioid microphones for the snare and hi-hats, 4015 Wide Cardioids for underheads, and 4099 Instrument microphones for all other instruments - including toms and cowbell - were employed.

The tour partially alternated in 2024 with the „One More Time Tour“ for the current album, during which Blink-182 used the centrally placed round stage for the first time.

**Setlist:** Anthem Part Two/The Rock Show/Family Reunion/Man Overboard/Feeling This/Reckless Abandon/Dysentery Gary/Up All Night/Dumpweed/Edging/Aliens Exist/Cynical/Don’t Leave Me/Not Now+ Violence/Happy Holidays, You Bastard/Stay Together For The Kids/Always/Down/Bored To Death/I Miss You/Adam’s Song/Ghost On The Dance Floor/What’s My Age Again?/First Date/All The Small Things/Dammit









## King Bushido forever

To celebrate his current album „König für immer“ (King Forever), Bushido performed 14 arena concerts in March and April, followed by a series of open-air shows in the summer. The tour was powered by products from d&b Audiotechnik, including numerous high-performance speaker systems from the SL series.

TSE AG was responsible for the technical services of the tour. In addition to sound, lighting, video, rigging, and kinetics (four LED/Light-Pods on 16 C1 trolleys), the company also took on various creative aspects in direct consultation with the artist, including creating the video content.

„We had already accompanied Bushido on his ‘Classic’ tour in 2016, where the venues were still somewhat smaller“, says Marcel Fery, board member of TSE AG. „In 2024, the biggest halls in the German-speaking world were on the tour schedule. Most venues were sold out, and in Berlin and Munich, additional shows were even added.“

For TSE, Thomas Stütz was the Senior Project Manager responsible for the smooth running of the tour. Emanuel Sequeira served as the sy-

stem engineer, working with Alexander Lewin and Ron Hoffmann to design the system. At FOH, Jonathan Wolff ensured great sound, while Ron Hoffmann managed the monitor desk.

Due to the size of the arenas and subsequent open-air shows, premium sound solutions from the SL series by d&b Audiotechnik were specified for the main PA: „The dimensions of the venues made these powerful systems absolutely necessary“, says Marcel Fery.

On the tour, 24 GSL8 and 8 GSL12 speakers were used in the halls, configured in a full-range L/R setup (12 GSL8 on top and 4 GSL12 below per side) and powered by d&b Array Processing. Array Processing was also used for Side-PA I (8 KSL8 on top and 4 KSL12 below; in the









Lanxess Arena in Cologne, an additional 4 KSL8 per side were used). For seating „at the very top on the side“, Side-PA II (4 XSL8 per side) was deployed. The composition of the main PA was identical across all venues during the tour to ensure consistent sound quality, while the side-hangs were adjusted according to each location and, of course, at the open-air shows.

The delay line consisted of two 4 XSL8 and two 4 XSL12 speakers, with the wider-dispersing XSL12 placed at the top of the array to fully cover the back corners of the arenas. Eight d&b AL90 speakers were used as front fills for the first rows of the audience, supplemented by two d&b Y10P speakers (left/right) at the outer positions. Although the performers on stage were equipped with in-ear monitors, sidefills were not omitted: Each side had a stack of two d&b SL-SUB and three d&b AL60 speakers.

The amplification was provided by 60 four-channel power amplifiers D80 (including spares) and D40 (for the delay line, 12 units including spares), which received their input signals via AES/EBU. Preceding the amplifiers were d&b DS10 Audio Network Bridges. For powerful bass reproduction, ten 2 SL-GSUB were used as a sub-array in infra-mode. The 20 subwoofers on the floor were complemented by two 6 SL-SUB flown behind the main PA. Emanuel Sequeira continues: „An important

factor is very good speech intelligibility, which is highly valued by German-speaking artists. For good clarity of lyrics and differentiated bass reproduction, cardioid radiation sound systems are of course advantageous, as they generate fewer unwanted reflections behind the stage and reduce bleeding, which makes the system behavior more predictable. When it's quieter on stage, it's also better for natural microphone signals.“

Marcel Fery summarizes his impression of the tour: „Bushido always has very clear ideas, which we were happy to take up and successfully implement at the concerts to his satisfaction - the feedback was consistently positive.“ Reflecting on the successful, sold-out arena tour with over 150,000 visitors and the massive response on social media, the award-winning German rapper has decided to hold a final farewell tour in 2026.

**Setlist:** Intro (Video)/Ronin/Wenn wir kommen/Nie wieder/Berlin/Tempelhofer Junge/Zeiten ändern sich/Sonnenbank Flavour/Das neue Kapitel (Video)/Electrofaust/Bei Nacht/Von der Skyline zum Bordstein zurück/Wenn der Beat nicht mehr läuft/Alles wird gut/Panamera Flow/Stress ohne Grund/Sterne/Renegade/Sodom und Gomorrha/Alles verloren/Nie ein RapperFamilie (Video)/Papa/Kein Ende – Dark Knight/Familie/Für Immer Jung



## Megan and her hotties

The Playground Design Collective used Elation's Artiste Monet Profile spotlights and Chauvet's Colorado PXL Bar 16s on Megan Thee Stallion's „Hot Girl Summer Tour“. It was the first headliner tour for the Grammy-winning artist.

The American rapper and singer Megan Jovon Ruth Pete, better known as Megan Thee Stallion („thee“ is spelled, „the“ is spoken...) wanted to share her creative and personal journey with her fans. She envisioned a tour that would tell the story of different phases of her career in three sections. This vision was brought to life by The Playground team, creating a mix of dramatic color changes and various set and video configurations with distinct looks.

Alongside The Playground (design and creative direction for the tour), production designers Sooner Routhier and Trevor Ahlstrand, and creative/show designer Curtis Adams were involved. Dane Kick took on the role of lighting programmer and director, while Jason Giaffo served as lighting programmer. Fuse Technical Group was the tour supplier for lighting and video.

The Playground team created multiple levels to provide Megan Thee Stallion's energetic performance with a spacious „playground“. Inspired by the organic forms that embodied the show's themes, The Playground designed a 30-foot circular LED video stage with an LED video floor as the primary performance area, three massive monolithic LED video towers, a snake-shaped light structure, and a circular runway stage. These

elements reached deep into the audience, creating an immersive concert experience.

The lighting design included 92 Elation Artiste Monet Profile moving heads, supplemented by six Proteus Brutus Wash FX spotlights. „The Monets were the central elements of the rig“, says Dane Kick. „Every go-bo or beam came from them. We placed them all over the truss, on the stage floor, and behind our upstage video wall for Megan's dramatic entrance at the start of the show. We also had six in our FOH truss, used to light the VIP riser during the show.“ Production designer Trevor Ahlstrand adds: „The Monets weren't just key lights; they were also effect lights. With their color mixing and performance, we were able to achieve fully saturated colors.“

110 Chauvet Professional Colorado PXL Bar 16 (motorized RGBW battens), supplied by Fuse, supported The Playground team by providing the appropriate colors for the scenes. The battens were positioned on the vertical towers between the video walls, seamlessly working with them, and along the upstage part of the stage, where they served as backlights. These units fulfilled multiple roles in the design and helped, according to creative director Curtis Adams, to direct energy and movement during the performance.





The Playground created a show in three acts, each with a special aesthetic intended to convey Megan Thee Stallion's transformation journey to the audience:

**Act 1: „Snake“** - Focused on her powerful beginnings, characterized by contrasting colors, intense lighting, pyrotechnics, and countless silhouettes.

**Act 2: „Butterfly“** - Megan sheds her skin and transforms into her sensual self.

**Act 3: „Human“** - Megan and her Hotties take the audience on a journey of metamorphosis from the concert to a wild dance party.

The role of color, created by all the lights in the rig, is explained by Sooner Routhier: „The first act focused on fiery colors - red, orange, fuchsia, magenta, amber with a small hint of turquoise. Act 2 was lit with cyan, magenta, baby pink, and yellow. The final act focused as much as possible on skin tones. The differences between the acts were achieved through color and video content.“

One of the highlights of the show involved a snake-like light sculpture wrapping around Megan Thee Stallion as she performed her ballad „Cobra“. Another highlight was a dichroic cocoon that revealed the singer at the beginning of Act 2.

Another moment where different creative elements of the show came together to add a powerful new dimension to the narrative was when electric guitar riffs from a rock anthem were accompanied by orchestrated

pyro and lighting, illuminating the black void while Megan Thee Stallion performed in the midst of the light and video swirl. The 92 Monets were distributed across the set, including the snake-shaped light structure. From the fiery intensity of Act 1, when red beams cut through the air, to the soft, ethereal glow and butterfly-inspired visual elements in Act 2, they were integral to the design of the tour. „One of the most exciting moments for me was zooming the Monets out and pointing them directly at the audience“, says Kick. „It's a simple but effective way to emphasize beats in songs, while also creating a different look in the show.“ In addition to the rig, Proteus Brutus lights were placed in the FOH truss and used as key lights for the dancers.

## Produktions-Team

**Production Manager:** Joseph Lloyd

**Production Designers:** Sooner Routhier, Trevor Ahlstrand

**Creative & Show Director:** Curtis Adams

**Lighting Programmer/Director:** Dane Kick

**Lighting Programmer:** Jason Giaffo

**Video Programmer:** Jose Santana

**Content Producer:** Anders Rahm

**Creative Producer:** Allison Ciccarelli

**Creative Manager:** Niccolo Cascino

**Creative Assistant:** Dulce Martin

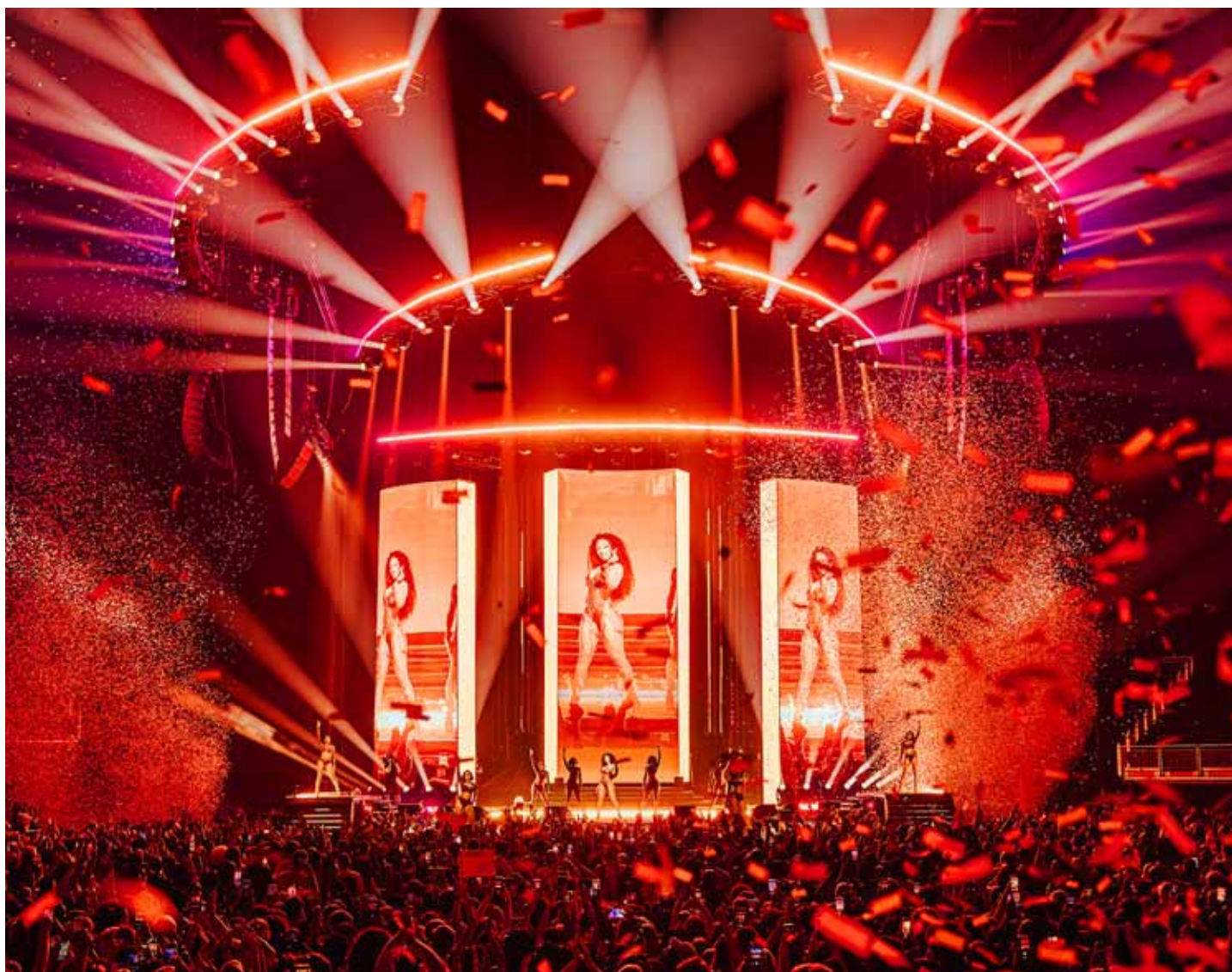
**Production Design & Direction:** Playground

**Lighting & Video:** Fuse Technical Group

**Content:** Raw Cereal

**Special Effects:** Strictly FX

**Scenic & Staging:** Tait, Show FX









## „No repeat weekends“

In April 2023, Metallica kicked off their two-year „M72 World Tour“ using a Meyer Sound Panther system. During the North American concerts in August, the new 2100-LFC Low-Frequency Control Elements were also used for the first time on the tour.

At each venue, two concerts take place during the „no repeat weekends“, each with a different setlist. The special feature: the entire audience can experience the impressive sound in stereo - from every single seat. „Our goal was to bring the intimate environment of a studio into the stadium“, explains Greg Price, FOH engineer at Metallica.

A total of 522 Meyer Sound loudspeakers are used at each concert, including 288 Panther Line-Array loudspeakers and 96 2100-LFC Low-Frequency Control Elements. The enormous sound system is provided by Clair Global and is set up in three concentric rings. The arrays of the outer ring hang from eight towers, each with two Panther Line Arrays and six VLFC Very Low-Frequency Control Elements per tower. For ground coverage, 2100-LFC and 1100-LFC Low-Frequency Control Elements are used.

The inner system is suspended from a network of steel cables above the stage and consists of eight Panther Hangs. The „Snake Pit“ in the center of the stage is covered by UPQ-D2 speakers, while 22 Ultra-X40 point-source speakers are used as frontfills on the outer side of the ring.

When the tour arrived in the U.S. in August, the team swapped 96 1100-LFC Low-Frequency Control Elements for the same number of 2100-LFC Low-Frequency Control Elements. Dan Braun, Creative Director at Metallica, shares, „I initiated the change to use the 2100-LFC instead of the 1100-LFC. After the switch to Panther, we were already getting a great sound experience, so I had no doubt that we would achieve even better results in the low-frequency range with the 2100-LFC than before.“

„We placed the new 2100-LFC exactly where the 1100-LFC speakers had been - during the tour, without any changes to my mix“, confirms

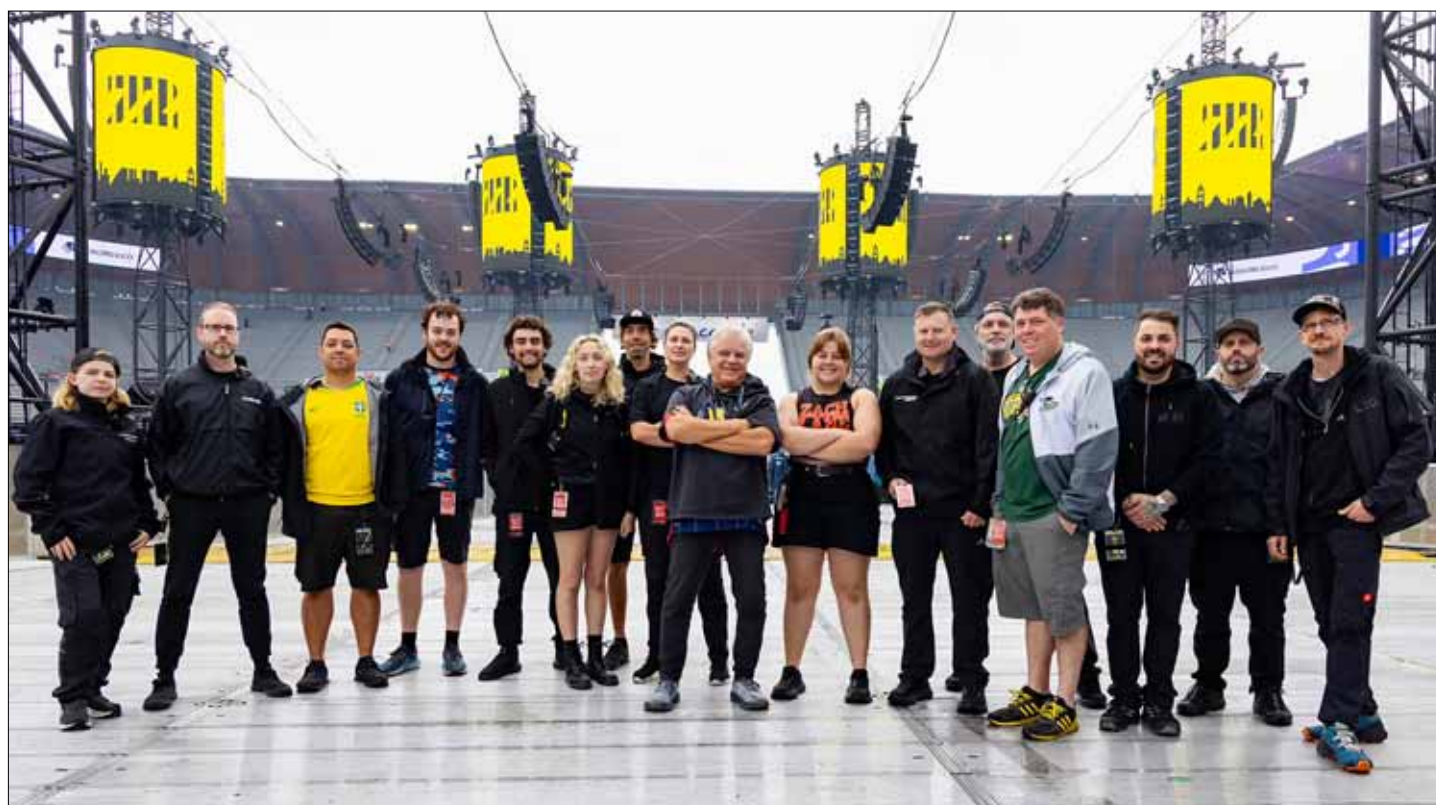
Price. Price and Braun had familiarized themselves with the 2100-LFC at Price's production facility before setting up a test system at Clair Global's headquarters. „We simply trusted that the exchange would be worth it“, says Braun. And he was right: „With the Clair Global team, we figured out how to transition from the 1100-LFC to the 2100-LFC.“

„Of course, we also worked with Meyer Sound here and coordinated with Bob McCarthy, Director of System Optimization, Josh Dorn-Fehrmann, Senior Technical Support Specialist at Meyer Sound, and our system engineer Chris Rushin“, says Price. The entire M72 system is connected, controlled, and monitored via three Milan-AVB networks, which were set up by Dorn-Fehrmann. „Metallica has been using the Milan network since 2016, when we were still using early versions of AVB“, he explains. „On this tour, we've implemented one of the largest, if not the largest, tour AVB networks in the world!“

The „M72 World Tour“ will continue in Spring and Summer 2025 with 21 dates in North America.

Fotos: *Ralph Larmann*

The Metallica Crew in Seattle (l-r): **Katlyn Manktelow** (Stage-Tech, Clair Global), **Emmitt Tubritt** (Crew Chief, Clair Global), **Luiz Melo** (PA Coordinator, Clair Global), **Sebastian Jordan** (Assistant System-Tech, Clair Global), **Ryan Hannon** (PA-Tech, Clair Global), **Stacey Handley** (RF-Tech, Clair Global), **Hannes Dander** (PA-Tech, Clair Global) and **Karina Evstigneeva** (PA-Tech, Clair Global) with **Greg Price** (FOH-Engineer for Metallica), **Anna Henson** (PA-Tech, Clair Global), **Craig Edwards** (Stage Manager, Clair Global), **Bob Cowan** (Monitor Mixer for Metallica), **Chris Rushin** (System Engineer of Clair Global), **Mike „Mic“ Bollella** (Monitor Mixer for Metallica), **Adam Correia** (Stage Crew Chief for Metallica) und **Jay Day** (FOH Assistant Mixer for Metallica)





# Motto #newera

In the summer of 2024, the Electric Love Festival (ELF) impressed with power, diversity, and reliability in its organic stage design using 180 GLP Impression X5 IP Bars 1000 and 60 JDC2 IP units.

The Electric Love Festival promises music, lifestyle, adventure, and community. A top-tier lineup with over 200 artists (including Scooter, Armin van Buuren, and Timmy Trumpet) across six stages, with 180,000 visitors from 70 countries, once again shook the Salzburgring. GLP contributed to the spectacle's power with 180 Impression X5 IP Bars and 60 JDC2 IP on the main stage. During the elaborately staged 16-minute Opening Ceremony, the weatherproof devices from the German manufacturer demonstrated their capabilities. Another 30 GLP Impression X5 Wash units impressed in the Club Circus.

Gigantic stage constructions, full of technology and attention to detail, shape the festival's appearance. The Main Stage is the centerpiece of the festival grounds year after year. The stage design was created by Twofiftyk. The LD Company developed the lighting design for the 76-meter wide and 26-meter high stage. Equipped with 1,200 fixtures and weighing a massive 200 tons, the design of the main stage stays true to the festival's history while also reinterpreting it in line with the motto #newera. The

iconic cubic design typical of the Electric Love Festival continues and begins anew by using the typical cubes for the first time in an inverted form, so the view is directed inside the structures. Elaborately adorned with around 800 wooden veneers, the organic-looking construction fits cleverly into the natural surroundings of the Salzburgring without visible steel elements.

The organizer was supported, as in previous years, by the Full Scope team. The company, represented in this project by Hannes Schnappinger and Matthias Hochwimmer, supported the festival's organizer from feasibility analysis and technical planning to the creation of CAD models, tender preparation, and budget management. „We coordinate the smooth running of the setup on-site, monitor performance and time management, and act as a liaison between the organizer and the stage production. Our task includes coordinating all trades, supporting static assessments and approval processes, as well as complete integral planning, with full transparency and control re-





sting with the client“, explains Senior Stage Producer Matthias Hochwimmer.

When it comes to creative stage design, EDM festivals now play in their own league, as Hochwimmer knows well: „You won't find a classic rig in the stage designs of the Electric Love Festival. Instead, designers integrate individual fixtures into the lavish stage constructions, which not only create an additional dimension in the design but also expand the stage's visual language. Attention is always paid to photogenic overall impressions and the multifunctionality of the fixtures to create variety and fresh impressions across different DJ sets and festival days.“

The main stage was defined this time by honeycomb-like structures made of inverted cubes, which were extended upward axially with vertically installed Impression X5 IP Bars. Arranged both vertically and offset in depth, this created a matrix that was fantastic to play with.

„With the zoom and tilt function of the X5 IP Bars, fan effects could be achieved across the entire width of the stage, and the individual pixel control of the lamps enabled various dimming and color effects. Thanks to the high light output of the bars, a blinder or strobe effect with high impact was also achieved.“

In contrast, the new weatherproof hybrid strobes from GLP, the JDC2 IP units, were used as classic strobes at the so-called crowns at the upper edge of the stage construction. Here, they served as an extension to the LED walls located at the crowns and „perfectly harmonized with the video content specially created for them“, adds Matthias.

All 60 of the video-capable hybrid units were integrated into the video system via NDI. Guest LDs, however, used them in DigiFX mode to ensure compatibility with their showfiles. The powerful dual-core CPU with graphic processing built into the JDC2 IP allows for the creation of video-like digital effects on the devices: the so-called GLP DigiFX. The JDC2 IP offers over 100 of these elaborate DigiFX, which can be manipulated in real-time via special DigiFX channels.

**Stage Design Mainstage:** Twofiftyk

**Licht Design Mainstage:** LD Company

**Stage Design Club Circus:** Drawmore Stage Design

**Licht Design Club Circus:** Depot zwei

**Stage Design Hard Dance Valley:** Big Vis

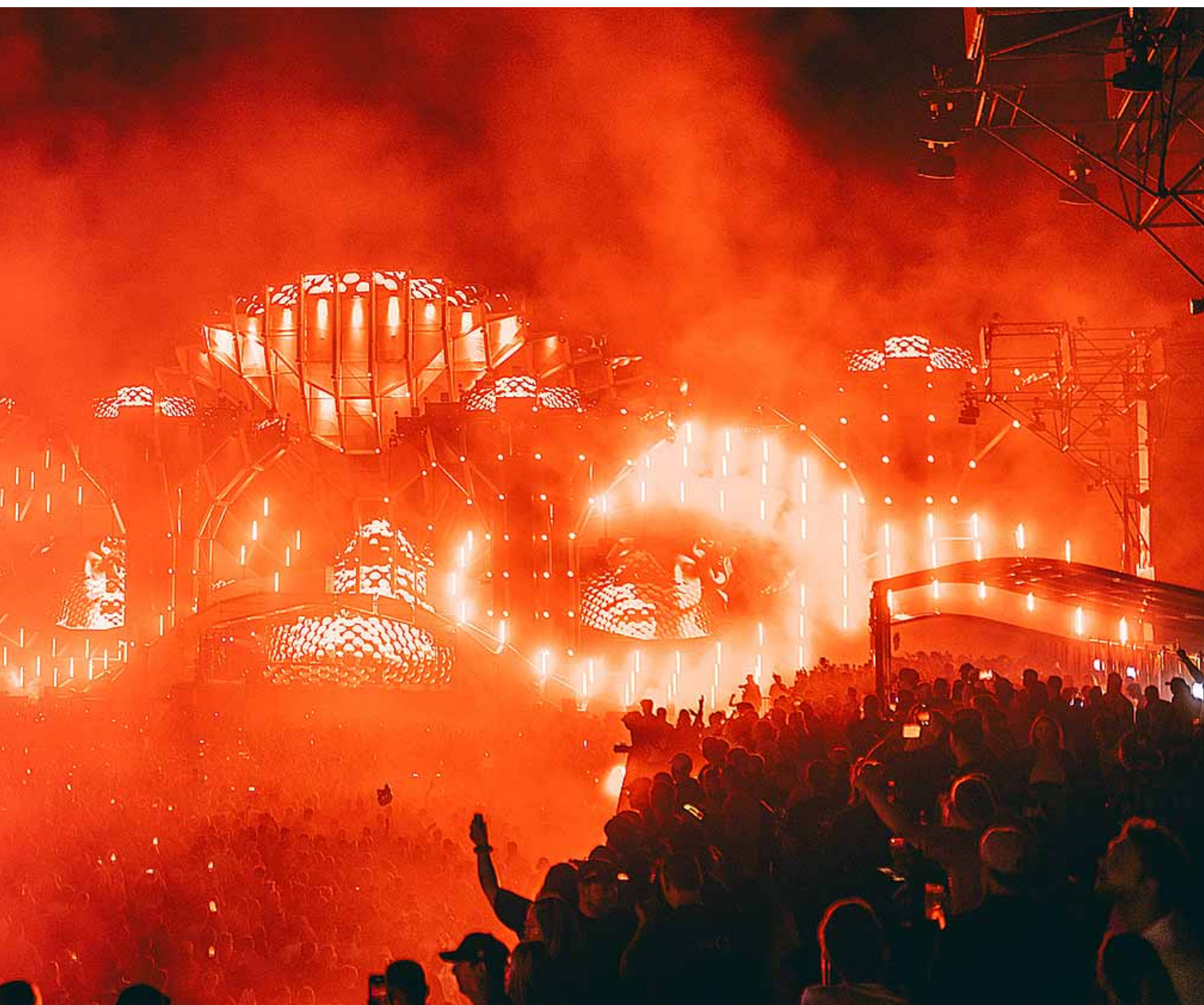
**Licht Design Hard Dance Valley:** Thomas Gerdon

**Technical Producer, Stage Production**

**& On-Site Project Management:** Full Scope, Axiom

**Technical Supplier Lights & Rigging:** Phlippro Productions

**Dry Hire Supplier:** CGS Dry Hire









# The anti-material battle

One of the most beautiful productions of this summer was Jan Delay's tour. It was, however, also the smallest production with the simplest local requirements, technically nothing extraordinary, no lamp battle, no 30 rigging points, no 3-ton LED wall, no SFX, no B-stage - just three trusses with spotlights, wash lights, strobe, and blinder, plus the house PA system. That's what stands out about this production - going against the trend of bigger, faster, further, and more expensive - yet still grand.

Accordingly, the tour went smoothly for the full-service providers on-site. Project manager Ingo Stadick from Expositive Medien Gruppe reports on the sold-out concert in front of 5,000 visitors at the Parkbühne in Hannover: „The process for these productions is always essentially the same“, Stadick explains, „We receive the stage instructions from the production (Rock'n'Roll Hamburg) and work out a proposal on how we would adapt the requirements to the local conditions. The production receives a complete layout for review, and the client receives the appropriate offer at the same time. There is usually a correction loop with minor adjustments from the production, and then the order is confirmed.“ The order was made by the local organizer, Hannover Concerts.

Since the grid of the Parkbühne is very flat, the maximum trim height of the production trusses for the lighting decoration had to be utilized. A second truss was placed on the pre-rig to gain an additional 40 cm in height. The only limitation was the long-standing steel beam of the grid.

The equipment used was small but fine, especially since Jan Delay's (and Disko No 1's) shows focus entirely on the powerful stage presence of the artist. „We used Ayrton Mistral, Robe Robin LED Wash 800, Chauvet Color Strike M, and conventional blinder lights in the lighting area“, continues Ingo Stadick. „So, our 'workhorses' of the mid-range performance class were used. They are well-accepted by the productions and save the client's wallet. The small dimensions and low weight also simplify handling during setup, and we rarely reach the roof load limit. Despite the low trim height, the output is sufficient for most productions - as long as no overly powerful lamps are used in the production's floor setup, which could cause an imbalance. Furthermore, they are all unbeatable in reliability.“ However, the trend is generally moving toward more powerful lights and larger quantities, as the project manager notes.

Ingo Stadick continues: „The sound system is a Kling + Freitag Sequenza 10 - the house PA that hangs in the stage all summer. It is part of the operating permit and, unlike other or changing systems, does not require a complex and costly sound emission measurement.“

The PA system consists of the following Kling + Freitag components: 12 Sequenza 10 N, 6 Sequenza 10 W, 12 Sequenza 10 B (flown, cardioid), 12 Nomos XLT (on the ground, L/R, cardioid), 4 Gravis 12 XW (near fill), 3-4 Gravis 12 N (outfill), 3 PLM 20K44, 8 PLM 12K44, and one Lake LM26/44: handover occurs via Dante, AES/EBU, or analog.

Expositive acted as the local technical service provider for the event with a lighting system technician, a sound system technician, a jack-of-all-trades, and a project manager/rigging specialist. „Since each of us also masters the other trades if needed, operational reliability is guaranteed even with such a small crew“, says Stadick.

„The production of the Jan Delay tour was, as usual, very professional, thought-out, and relaxed. It is always ensured that the stage design adheres to general standards and can be implemented in almost all venues. No extraordinary gimmicks or devices that you can no longer rent anywhere in the summer are required. Special equipment that makes the individual design stand out all comes from the production itself - just as a local service provider, and even the organizer, would wish“, concludes Stadick. „It's always a special pleasure for us to work with Lars 'Vegas' Ide from



Rock'n'Roll Hamburg. He has become a true institution. His way of leading a production and his interpersonal skills are truly exemplary.“

Jan Delay thanks: Tropf, Moritz, Tim, Lui, Sabrina, Heine, Vincent, Philipp, Basti, Lars, Svenja, Stef, Todde, Marie-Therees. Other partners: Absolute-Touring, Rock'n'Roll Trucking.

Jan Delay will be on the road again in summer: 29.05.2025 Festival am Steiner Tor, A-Krems; 30.05.2025 Jahrhunderthalle, Frankfurt; 31.05.2025 HMSH, Stuttgart; 02.06.2025 Unique Moments, CH-Zürich; 13.06.2025 Beach Club Nethen, Nethen; 14.06.2025 Legends At The Sea, Büsum; 02.07.2025 Seebühne, Bremen; 04.07.2025 Markdorf Open Air, Markdorf; 05.07.2025 Pinot and Rock, Breisach; 11.07.2025 Westfalenpark, Dortmund; 15.07.2025 Mangfallpark, Rosenheim; 17.07.2025 Open Air am E-Werk, Saarbrücken; 22./23.07.2025 Arena Open Air, A-Wien; 24.07.2025 Kulturinsel Wöhrmühle, Erlangen; 25.07.2025 Waschhaus Open Air, Potsdam; 31.07.2025 Szene Open Air, A-Lustenau; 01.08.2025 Big Day Out, Anröchte; 02.08.2025 Szene Open Air, A-Lustenau; 03.08.2025 Klassik am Dom, A-Linz; 14.08.2025 Kunstrasen, Bonn; 15.08.2025 Brawo Bühne, Braunschweig; 23.08.2025 Waldbühne, Northeim; 11.09.2025 Wunderino Arena, Kiel

**Setlist:** Hallo/Klar/Türlich, Türlich (Das Bo)/Showgeschäft/Spaß/Kinginmeimding/Dre Medley/Irgendwie, irgendwo, irgendwann (Nena)/Ich möchte nicht, dass ihr meine Lieder singt/B-Seite/Disko/Für immer und dich/B-Boys & Disko-Girls/Sie kann nicht tanzen/Are You Gonna Go My Way (Lenny Kravitz)/Feuer/Oh Jonny - Mercedes-Dance Intro/Pump Up Medley/Remmidemmi (Yippie Yippie Yeah) - Eule/St. Pauli







## „Tony Iommi attends regularly now“

In 2020, Carlos Acosta, the newly appointed director of the Birmingham Royal Ballet, wanted to learn more about the company's hometown. Enthralled by the stories, culture, and diversity of Birmingham, he commissioned three new productions – one of which was „Black Sabbath - The Ballet“.











„Black Sabbath - The Ballet“ is a journey through the sounds and history of Black Sabbath, the pioneers of heavy metal, led by Ozzy Osbourne, and hailing from Birmingham. The ballet features the work of three composers under the direction of Christopher Austin, and three choreographers under the direction of Pontus Lidberg. The story was written by Richard Thomas, with lighting by designer Kieron KJ Johnson, and the music was performed live over three acts through a PA system by Britannia Row Productions. The ballet was performed live by the orchestra of the Birmingham Royal Ballet, the Royal Ballet Sinfonia.

The band itself, led by Tony Iommi (guitar), was closely involved in the development of the production. Black Sabbath songs such as „Iron Man“, „War Pigs“, „Black Sabbath“, „Paranoid“, „Solitude“, „Sabbath Bloody Sabbath“, „Orchid“, and „Laguna Sunrise“ were reorchestrated for the performance by a symphony orchestra.

„This production has probably brought heavy metal fans to ballet for the first time - including Black Sabbath founder Tony Iommi, who now attends regularly“, says Paul James, Commercial Director of the Birmingham Royal Ballet. „Ballet continually attracts new fans and new generations of audiences, but ‘Black Sabbath - The Ballet’ was extraordinary: over 64% of ticket buyers for the shows had never booked a performance of the Birmingham Royal Ballet before.“

Tom Brown, Account Executive at Britannia Row, adds: „The Birmingham Royal Ballet wasn’t used to working with a large touring audio company like ours, but they seemed to really enjoy the collaboration.“

Composer Christopher Austin had previously worked on a ballet orchestration of the White Stripes and was, therefore, a natural choice for „Black Sabbath - The Ballet“, as Paul James explains: „He and the creative team spent hours listening to Black Sabbath’s back catalog to select eight pieces that would both produce the iconic sound in the theater and develop the dance elements the piece needed to function as contemporary ballet.“

„The three composers for this ballet created a fitting new sound with their fusion of heavy metal and classical music“, adds Paul Grace, Technical Director of the Birmingham Royal Ballet. „We hired sound designer Josh Blair, who had previously worked with Lady Gaga, Beyoncé, Paul McCartney, and Duran Duran, to create a sound design that met the complex demands of this new score.“

Blair specified Avid consoles and an L-Acoustics PA system for the project. He was already familiar with the Avid console from his studio work. As for the monitor section, sound engineers Naomi Nash and Adam Taylor also chose Avid S6L32D consoles. Nash and Taylor shared the tour duties. „The most important thing was to preserve the integrity and clarity of a live orchestral performance while ensuring the weight and impact expected from Black Sabbath hits like ‘War Pigs’“, says Nick Boulton from Britannia Row’s engineering department. „We specified L-Acoustics Kara II to achieve the first goal and added L-Acoustics SB18 subwoofers flown in a tightly packed arrangement to achieve the second goal.“

„Kara provided a scalable platform that allowed us to guarantee full coverage of the often quite complex topology of various theater spaces“, Boulton continues. „This, along with the low-mid beam steering, allowed for consistent audio quality across the entire audience. We complemented the flown system with various fills, including eight 5XT speakers, which served as spot fills or provided additional coverage for areas that were not as ‘directly’ involved in the music.“

„The design also included additional reinforcement in the low-frequency range with a cardioid arrangement of L-Acoustics KS28 twin 18-inch subs“, Boulton adds. „These provided the lowest frequencies but were discreet enough to stay hidden in the wings and not distract from the ballet performance.“

„Black Sabbath - The Ballet“ will continue its journey in June 2025 with a tour through the USA after its European run.





## Detail-loving pixel mapping

Matt Pitman, founder of the design studio Pixelmappers and longtime production and lighting designer for Dua Lipa, used a rig of Ayrton lights for the headliner performance of the singer-songwriter on the Pyramid Stage at the Glastonbury Festival 2024.

Pitman opted for a cohesive selection of Ayrton fixtures, including the new Rivale Profile and the laser-powered Kyalami, supplied by Lights Control Rigging (LCR) as part of his tour rig. The Ayrton models Cobra, Bora, Perseo Profile, and Domino LT formed the main house rig and audience lighting, delivered by Neg Earth Lights. The Ayrton fixtures were purchased from Ambersphere Solutions, Ayrton's distributor for the UK.

In one of the first major touring productions to use the Kyalami since its release in May, Pitman chose 64 of the compact fixtures, mounting them in two vertical rows on 9.5-meter-high ladders on both sides of the stage. Only 1 cm separated each neighboring Kyalami lens. „This allowed us to create some fantastic looks, thanks to the close proximity of the fixtures and their extreme brightness“, says Pitman.

Steve Bliss, LCR Project Manager for Live Events, adds: „Matt and I discussed Dua Lipa's upcoming tour and her Glastonbury performance in the early stages of design. He came up with some new ideas that really pushed the boundaries of technology and rigging. We had to create a custom bolt-on for our pre-rig ladder system to support 27 Kyalami fixtures and some LED battens on each side, ensuring the weight was evenly distributed and the space requirements were met to remain 'tourable' alongside the US video wall. The remaining sixteen Kyalami units were built into two movable frames.“

Dave Stewart, Ayrton's Designer Relationship Manager for the UK, had pointed Pitman toward the Kyalami shortly after the lighting designer learned he would be designing for the Pyramid Stage. „I really wanted to create some big vertical light curtains, but I had very little space to rig them“, Pitman says. „When Dave showed us the Kyalami, we quickly decided we wanted to use it.“

For his floor setup, Pitman chose 68 Rivale Profiles, most of which were rigged along the edge of the front stage, plus a few additional units in the main stage setup that served as footlights for the dancers. „We tour with a large number of Rivalas as the floor set and added 24 more for the Pyramid Stage, all positioned 1.1 meters apart across the entire width of the front stage“, he explains. „Since this was the first time an artist had performed on the B-stage on the Pyramid Stage, we wanted it to look great when Dua went into the audience - from that point, the entire background was filled with Rivale Profiles.“

Additional beam effects were delivered by 28 laser-powered Cobra fixtures. „After two weeks of working with the Cobras at Glastonbury, we definitely found their 'sweet spot'“, Pitman says. „Neg Earth positioned them directly under the stage roof and a few on each side over the left and right video screens. We tilted them horizontally and fanned them toward the audience to give the stage huge 'eyelashes'.“





The house rig was further complemented by 34 Bora wash lights and 48 Perseo Profiles mounted on four overhead trusses, plus some units on the trusses above the left and right screens and twelve Domino LTs for audience effects. „The LT versions were necessary because they were so far from their target, but we needed the brightness“, says Pitman.

„We supplied the house rig, audience lighting, and fixtures for the B-stage, the ‘truss tower posts’ for both the light and sound FOH tents, as well as Rivale fixtures for these areas“, says Gavin Maze, Project Manager at Neg Earth Lights. „When we heard that Neg Earth had equipped the flown rig with Perseo fixtures, we immediately requested an exact replica of the house rig for the production rehearsals“, Pitman explains. „LCR provided us with Perseo and Cobra test fixtures, and we programmed them in advance so we didn’t have to deal with the details in the limited time on site. We balanced the entire rig to white during the rehearsals for the cameras, and it was very noticeable that what we programmed with one set of Perseo in the rehearsal room matched exactly with another set of fixtures - important for the TV broadcast. I was impressed by how the colors transferred from one rig to the other.“

„We at Pixelmappers are very detail-oriented and tested each individual light in each color to see if it worked on camera“, Pitman continues. „The fact that the laser-powered Kyalami and Cobra from the house rig and the LED-powered Perseo and Rivale from the tour rig worked so well together shows that the technology is complementary. Even though the fixtures have different ages and optical systems, they all blended well together - as if they were from the same ‘family’.“

**Production & Lighting Designer:** Matt Pitman

**Project Manager:** Tom Snell

**Associate Lighting Designer & Programmer:** Oliver Martin

**Lighting Director:** Aaron Veness

**Video Director:** Robin Senoner

**Production Design Assistant:** Oliver Hynds

**Project Manager für LCR:** Steve Bliss

**LCR Team:** Mike Oates, Ryan Hopkins

**Lighting Crew:** Iyestyn Thomas (Lighting Crew Chief), Rob Watson, Sam Worthy, Simon Port, Dickie Brennan









## „OK, let's do it!“

The year-long „Saviors“ tour by the American band Green Day, which started in Spain in the spring of 2024, utilized a GSL PA system from d&b Audiotechnik to showcase the punk rock virtuosos in stadium-sized venues.

FOH engineer Kevin Lemoine has been working with Green Day since 2000. „The band has definitely evolved“, he notes. „Our first tours were much more minimal compared to today. Clubs, theaters, small arenas, and festivals were the norm, but the spirit was the same: band members giving everything and truly living and breathing it - just like today.“

„I don't want to distract the fans from what they know“, he continues. „Everyone knows the lyrics, instrumentation, and hooks - and that needs to remain familiar.“ Lemoine emphasizes that working with audio rental partner Eighth Day Sound helped him meet all the requirements, even „on the road“: „Any crazy idea was always met with a smile and an 'OK, let's do it!'. That kind of technical support is just fantastic.“

Lemoine's console of choice is often the 5088 from Rupert Neve Designs. For other gigs, he uses a Trident 88 or an Avid S6L console. „The Trident is a compact 24-channel analog console we've been using since 2021“, he says. „Right now, both analog consoles share the same plug-ins and the analog vocals rack. My favorite plug-ins are the Black Salt Audio Silencer and Soothe Live.“ For frontman Billie Joe Armstrong's vocals, Lemoine uses a DPA 2028 capsule. „Besides various other reasons, it's mainly the tonality that works for me. It's dynamic, present, and

smooth“, says Lemoine. Another key to the band's characteristic sound is the chosen PA system, a d&b Audiotechnik GSL, designed to handle large audiences such as the 90,000 people at the Italian Green Day shows. „It keeps a lot of energy off the stage, which is a crucial factor“, says Lemoine, with Systems Engineer Clark Thomas adding: „The GSL makes sure everyone feels 'close' to the PA, even if they're physically farther away.“

The system is as simple as it is effective: mains, sides, ground subs with fills, and a set of small delays. The GSL is powered by Direct Outs Prodigy MP at the front end, using Globcon software with Smaart V9, d&b R1, and d&b Array Calc for precise calculations.

Not least, the well-rehearsed team contributes to the success of this tour, as Monitor Engineer Danny Badorine explains: „All departments are optimally staffed, and every crew member feels comfortable - largely thanks to our production manager Zito. And the opportunity to work with Kevin Lemoine is one you shouldn't pass up.“

„I was very well-prepared for this job“, continues Badorine. „Beau Alexander, the band's longtime monitor engineer, handed me a perfect fi-









le. I watched him at a few shows, and all I had to do was mimic him.“ For the „Saviors“ tour gigs, there were twelve mixes: six for the musicians on stage, a guest mix, a few technical mixes, and an FOH mix from Badorine’s Avid S6L-32D console in Wisycom IEMs. „I use fewer than ten plug-ins, and they’re all native to the console“, says Badorine. „I have a few reverbs, an extra compressor for the drums, a multiband compressor for the lead vocals, and a bus compressor for the FOH mix. We have a thumper for the drummer, powered by a d&b D80 amplifier, but there are no speakers on stage.“

Although he inherited the S6L from Beau Alexander, it’s also Badorine’s preferred console: „I’ve been using it almost exclusively for the last six years.“ He also uses Wisycom in-ears and a SmaartRig to test them daily with a MiEMi-m measurement tool: „The MiEMi-m shows me if they have faulty drivers.“

Badorine also appreciates the support from Eighth Day Sound: „Our Eighth Day Sound/Clair Global Account Executives Beau Alexander and Jason Vrobel have assembled one of the best audio teams - including Dylan Rohrer - that I’ve ever seen, and they’ve supported me in various ways over the last fifteen years.“

RF Engineer Rogerio Bammann coordinated the radio frequencies for the entire North American tour lineup. „Our frequencies are clean and free of interference and DTV“, he says. „A big issue now is the crowded spectrum. By doing a good scan and seeing where DTV is, and constantly scanning, I can observe how the spectrum behaves throughout the day and make decisions about where the instruments and IEMs should be placed.“

For scanning, Bammann uses the Owon HSA1016-TG Handheld Spectrum Analyzer and the Sound Base app for coordination. „The ability to use the preamp has helped me find dips where microphones, instruments, and IEMs work better.“

Clair Global also provided eighteen Riedel Bolero wireless intercom packs for full-duplex production communication, 120 Motorola two-way radios, and data services in the form of a new Pelican IT package - mainly for dressing rooms - as well as three Production-IT racks for this tour.

The punk rock trio Green Day consists of Billie Joe Armstrong (guitar, vocals), Mike Dirnt (bass, vocals), and Frank Edwin „Tré Cool“ Wright III (drums). On the „Saviors“ world tour, currently underway, they are performing their two most successful albums, „Dookie“ (1994) and „American Idiot“ (2004), in their entirety.

#### Setlist 2024:

The American Dream Is Killing Me/Dookie (full XL album: Burnout/Having A Blast/Chump/Longview/Welcome To Paradise/Pulling Teeth/Basket Case/She/Sassafras Roots/When I Come Around/Coming Clean/Eminius Sleepus/In The End/F.O.D./All By Myself)/Know Your Enemy/Look Ma, No Brains!/1981/One Eyed Bastard/Dilemma/Minority/Brain Stew/American Idiot (full album: American Idiot/Jesus Of Suburbia/Holiday/Boulevard Of Broken Dreams/Are We The Waiting/St. Jimmy/Give Me Novacaine/She’s A Rebel/Extraordinary Girl/Letterbomb/Wake Me Up When September Ends/Homecoming/Whatsername) – Bobby Sox/Good Riddance (Time of Your Life)





## WALL-CELEBRATION

Location: Brandenburger Tor, Berlin  
 Company: GLP, Phase 7, PRG  
 Specification: Phase 7 and lighting designer Flo Erdmann created a musical declaration of freedom with Impression X5 IP Maxx, X5 IP Bar, and Fusion X-PAR 12Z, celebrating the 35th anniversary of the fall of the Berlin Wall. Instead of a central celebration at the Brandenburg Gate, this time they opted for a decentralized concept with five stages. The staging spanned over four kilometers through the city. The team: Sven Sören Beyer (Director), Raphael Grebenstein (Programming/Show Lighting), Ole Güllich (Light Art Studios); Technical: PRG.



## US OPEN

Location: New York  
 Company: Cittadino  
 Specification: For the very first time, an international top sporting event was publicly live-streamed nationwide via a DOOH network. The US Open was broadcast daily in 2024 at numerous German airports through the screens of Cittadino, a leading Digital Out of Home provider, via Sportdeutschland.TV, Germany's largest sports streaming platform. The live stream took place simultaneously on over 700 screens at eight German airports. During the 14 days, over 20 million advertising contacts were generated.



## ROADSHOW

Location: on tour  
 Company: Format C  
 Specification: The game publisher Jumbo took its game „Hitster Summer Party“ on a roadshow across over 40 stops in the DACH region. The Cologne agency Format C was responsible for the concept, organization, and media production of the promotional tour. The promotion team created a branded RoadshowMobile as an eye-catching and successful advertising medium. The converted Fiat Ducato offered a deployable outdoor terrace as the perfect playing space. „We wanted a creative extension of the roadshow“, says the boss, Tobias Weber.



## UEFA EURO

Location: Flößerbrücke, Frankfurt  
 Company: Kaiser, Bright, LMP  
 Specification: For the opening ceremony of the host city Frankfurt, Kaiser delivered 48 Pulse Bar L units to Bright GmbH for the first time, which used them to transform the Flößerbrücke over the Main River into a giant light instrument in a multimedia show. The Pulse Bar comes in lengths of 50 and 100 cm with 480 (960) RGB LEDs with 1.5 watts each, controllable in 20 (40) zones. Additionally, the bar features a central strobe line with 200 (400) cold white 5-watt LEDs, also controllable in 20 (40) zones.



## PRESS CONFERENCE

Location: Swiss Life Hall, Hannover  
 Company: Ledtek, Exposive  
 Specification: On October 24, 2024, the Scorpions announced their only show in Germany for 2025 to celebrate their 60th anniversary. On stage at the Swiss Life Hall, the band sat together with the organizers Ossy Hoppe (Wizard Live, left) and Nico Röger (Hannover Concerts, right) in front of a video wall measuring 8 x 6 meters. Ledtek's P4+WH PRO modules illuminated the dimly lit room. The crystal-clear resolution brought the scorpion image to life. The date is July 5, 2025, at the Heinz von Heiden Arena.



## STAFF EVENT

Location: Messe, Stockholm  
 Company: Schokopro, Vision 2  
 Specification: For the lighting of the one-day event, which included both conference and gala applications, the team led by project manager Joe Wippel used the compact Wash/Beamlight Midi-B by Claypaky for the first time: 300 pieces of the moving lights equipped with 19 x 40 W LEDs replaced an older, similarly sized LED washlight from another manufacturer that had been used in previous years for this event. The recommendation came from Jens Wetterkamp of the Dortmund-based dry hire specialist Niclen.





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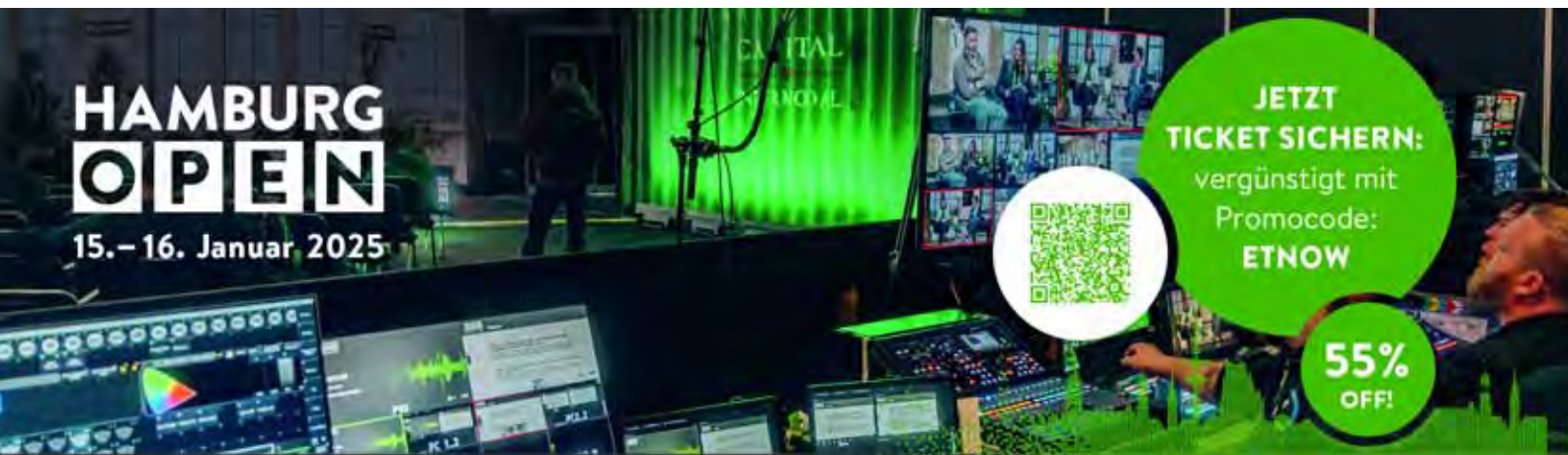


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# 13.5 million contacts

For one season, American YouTuber Nahre Sol took her around 750,000 subscribers along digitally as a „Creator in Residence“ at the Elbphilharmonie. Two published videos in collaboration with the Ensemble Resonanz successfully brought the project to a close.



In Hamburg, over the past few months, Nahre Sol explored the sound worlds of Gustav Mahler and Franz Liszt, learned about North Indian flute art, discussed the music of John Williams with star violinist Anne-Sophie Mutter, and traced the journey of a concert grand piano from the wood storage to the stage of the Elbphilharmonie.

Cross-platform, the videos created during the residency have been viewed 13.5 million times. Nahre Sol's video about the Elbphilharmonie organ alone reached over 800,000 people, while her meeting with the solo harpist of the NDR Elbphilharmonie Orchestra, Anaëlle Tournet, was clicked 4.3 million times. In addition to numerous videos on Nahre Sol's channels, content also appeared on the Elbphilharmonie's digital channels.

A year ago, the Elbphilharmonie became the first concert hall in the world to create the role of „Creator in Residence“. The new digital initiative began with the internationally successful YouTuber and pianist Nahre Sol. During her piano studies at the prestigious Juilliard School in New York, Nahre Sol began uploading videos to YouTube. Today, about 750,000 subscribers watch the American as she explores music in all its facets. She is also active as a content creator on Instagram and TikTok. Her talent as

a composer and arranger is showcased in two new videos with the Ensemble Resonanz.

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„You're such a passionate and articulate explainer/explorer of music. With more people like you acting as an informed but approachable interface to classical music for the masses, classical music adoption might just become a lot more widespread.“

„Classical music badly needs young people who tend a bridge between tradition and progress through modern means of communication, and institutions who support them. I salute every prestigious institution and artist who grasp the opportunity those modern means offer as an educational tool.“

„I think there are so many people who are learning about and appreciating music of all kinds because of your work.“

„It's amazing that classical music content creators are getting recognized in this way - this is an achievement for all classical musicians.“

[www.elbphilharmonie.de](http://www.elbphilharmonie.de), [www.nahresol.com](http://www.nahresol.com)

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