

# THE INTERNATIONAL BUYER'S GUIDE

A SPECIAL PROMOTIONAL PUBLICATION FROM THE NEWBAY MEDIA GROUP

# LIVE SOUND TECHNOLOGY 2011

PRODUCED BY

**AUDIO** MEDIA

In association with:

**ProAudio**  
Review

**prosound:**news

# SHOWTIME



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# contents

## Welcome

Welcome to *Live Sound Technology 2011*, an overview of the live sound product market for the sound reinforcement professional.

This second live sound supplement from *Audio Media* magazine is an all-new exploration of current thinking and hot products in the performance audio and sound reinforcement industries. This area has some very specific needs, from bullet-proof reliability and redundancy, to maximum emphasis on ergonomics and immediate access to functionality. An audience makes all the difference – you can't go back and try again.

Running parallel with these core requirements are the stunning advances in sound quality that have been made in a relatively short time. The consumer is demanding more and more from live performance, and the manufacturers and operators are delivering. The new generation of digital consoles, plug-in processing, progress in PA and line array, sophisticated audio and comms networking tools, and much more are all contributing to rising standards in sound reinforcement.

We hope this guide will serve as a good foundation to your 2011 live sound equipment specification, whether you're creating a shopping list for your theatre, a rider for a forthcoming tour, or an investment plan for your rental operation. To help set the scene, we've included independent articles on the live sound industry, then we present product expos from ten manufacturers, all with high-end technology solutions specifically for sound reinforcement. Lastly, we present a directory of selected manufacturers directly relevant to the live sound industry.

This promotional guide has been produced by *Audio Media* magazine. The publication concerns itself with the business of audio production on tour, on location, and in the studio – for professional creatives, operators, technicians, and engineers everywhere.

The Audio Media Team.

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











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# MADI

## – The Comeback King!

Twenty years ago MADI ruled the roost, but then its reign slowly dwindled. Now there's been a resurgence in the old technology. LEE MINICH of LabX Technologies examines its comeback, its underlying technologies, and the reasons for it all.



Lee Minich of LabX Technologies.

While career comebacks, reunion tours, and popularity resurgences are not uncommon in the music industry, such comebacks are unheard of in the realm of digital transports – that is unless you're former superstar MADI. No, it's not the diminutive form of Madeline; instead a nearly 20-year technology, reappearing in modern technology at an ever-increasing rate.

In 1991, the Multi-channel Audio Digital Interface (MADI) was introduced by the Audio Engineering Society, hence its "official" standard name – AES10. While the original incarnation of standard AES10-1991, defined 56 channels at 48 kHz with support varispeed (+/- 12.5%), it was later amended to support 64 channels at 48kHz without support for varispeed. In 2003, the standard was amended to the current AES10-2003 "double rate" support for 32 channels of 96kHz audio.

MADI was originally conceived to route digital audio through broadcast facilities via commonly available 75Ω coaxial cabling utilised for video distribution, where the typical MADI physical media is coaxial cable connected at the device via BNC connectors. For longer distances and electrical isolation, fibre optic connections are often found.



While MADI is unidirectional, i.e., data flows in only one direction, it is very common to find TX (transmit) and RX (receive) connectors to provide up to 64 x 64 channels via two coaxial or fibre optic cables on a single device.

MADI is a self-clocking protocol, meaning its clock is embedded in the data and does not separate clock and data lines. Given MADI's genesis from the Audio Engineering Society, there are also many similarities to two-channel digital transport commonly called AES/EBU (technically AES3, created in 1985), thus 28 or 32 AES3 streams can be easily transported via MADI.

### A Sudden Resurgence in MADI

The widespread adoption of digital mixing consoles due to their ever-decreasing price points and footprints has further driven the digital audio industry and has certainly elevated the need for a convenient medium for point-to-point connections of large quantities of digital audio signals. MADI's 64-channel capability

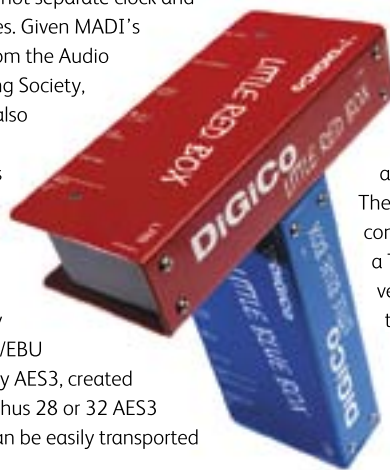
fits the needs of small to medium-scale consoles. Additionally, its support for both copper (coax) and fibre connections provides solutions for integration into broadcast facilities (via coax), as well as long distance options via fibre. This, coupled with a new generation of lower cost MADI devices from the likes of RME and other manufacturers, effectively brought new life to what once was considered a dying standard.

One of the challenges of utilising MADI is that it is inherently point-to-point. This is a blessing and a curse.

The simplicity of connecting an RX to a TX is powerful and very similar to point-to-point convention analogue audio wiring (the tried and true XLR cable).

The downside is it can be costly to perform "splits", sending the signal to multiple locations simultaneously, routing particular channels to various locations, or "merge" or combine channels from various MADI input devices into a single MADI stream. To accomplish this requires additional

MADI devices called routers and mergers respectively. While these are prolific in broadcast facilities, they are often specialised and quite expensive pieces of equipment. Additionally,



"One of the challenges of utilising MADI is that it is inherently point-to-point. This is a blessing and a curse."



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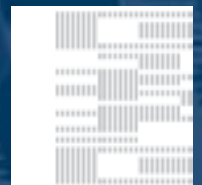
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# Wireless Update

The introduction of new UK and European radio frequency regulations is without doubt one of the hot topics in today's music industry. There is plenty of uncertainty about what will happen when next year's Channel 38 switchover takes place, and there is much talk about digital wireless versus analogue. Some people believe within just a few years, manufacturers won't be making any analogue wireless microphones. *Audio Media* talks to some of the major manufacturers about product upgrades, changes, and current trends that are being set in the wireless sector.

**Stephanie Schmidt – Sennheiser**  
**Don Boomer – Line 6**  
**Wolfgang Fritz – AKG**  
**Tuomo Tolonen – Shure**  
**Kishore Patel – Audio Limited**

*AM: In the context of the new UK and European frequency regulations, what changes and upgrades to your product ranges have been made recently?*

**SS:** For the UK, Sennheiser has launched its best-selling RF wireless series, the evolution wireless G3 and the 200 Series, in a special UK version to fully exploit Channel 38. In June, Sennheiser will also launch its brand new 1800 MHz systems (ew 100 G3-1G8 series). This higher frequency band is one that has been reserved for wireless audio transmission exclusively in a number of countries across Europe. Users will no longer have to plan their systems around primary users or painstakingly search for gaps between TV channels. It's license free in some European countries, so there are no follow-up costs for the user.

**DB:** We at Line 6 entered the wireless category in a very unique position; we didn't have product to change or modify at all. However, we could develop an approach that accommodated the ever-changing RF landscape from the get-go. Our systems were designed from

the ground up specifically to deal with these challenges. We purposely steered away from utilising modified existing technologies as it is almost certain that this approach is only a short term solution as there are many more rule changes to come and many new devices coming online, all of which are going to be competing for bandwidth.

**TT:** This is something that's been going on for the past seven years, but over the last eighteen months or so, Channel 38 has been the industry buzz-word. We now have a number of lines of radio mics including the PG, which is entry level, the PGX, the SLX, and the UHF-R, and we've most recently brought in the Axient wireless system, which is the first of its kind able to change frequencies that are undetected by the user to avoid interference. All our mics are now channel-38 ready, which I think many manufacturers haven't yet properly addressed.

**WF:** Due to the new regulations all over the world with the lost frequency spectrum in the professional UHF range, we have had to add new products to our wireless portfolio that support the new assigned frequencies. The UK has a unique frequency situation: the license-free frequencies were changed from TV channel 69 to 38. All over the world, this channel 38

is blocked for radio astronomy, except in the UK, therefore we developed the new Band for our WMS470 and Perception wireless range. Also in Germany and other EU countries, customers have to change their professional wireless equipment to new assigned frequency ranges. For example, in Germany it is now the 710 and 790 MHz range.

A second important development was our professional DMS700 digital wireless microphone. With its ultra wide tuning range of more than 150 MHz it is absolute future proof and supports the old and new frequency range. It sets a whole new level of audio quality and encryption security.

**KP:** We were able to upgrade some of our more modern equipment, but some of our older gear stretches back eight or nine years or so, which meant we couldn't because of the Roche compliance, and we couldn't get all of the components. For us, to be able to redesign boards for an obsolete product wouldn't make sense – it would be at a far greater cost than getting people to go and buy a new one. On our 2040s and our Envoy systems, we were able to accommodate these changes as it involves circuit boards.

*AM: What, if anything, are your offerings in the digital wireless GHz range?*

**SS:** For a Sennheiser digital wireless system, you'll have to bear with us for the time being...

**DB:** All of the Line 6 microphone systems are digital and operate in the 2.4 GHz ISM band. This allows them to be used everywhere without any concerns over licenses. Due to the nature of ISM bands, any near future rule changes are highly unlikely.

**TT:** Shure's only digital wireless offering is the PGX Digital series which utilises the 900 MHz frequency band.

**WF:** The 2.4 GHz frequency range is not supported by AKG at the moment. This range is very crowded and has limited channel quantity and working range. Due to this limitation, it is not recommended for professional applications.

**KP:** No – we haven't gone digital at the moment at all as all the parameters need to be addressed in our market. As far as the 2.4 GHz range – we think it is far too crowded an area to make applications work for our users.

*AM: What trends do you see in product selection and deployment in the wireless sector?*

**SS:** Frequency-wise, not all European countries have decided yet where

wireless systems are to operate in the future. The UK and Germany are really quite far advanced in their frequency regulations. For example, in Germany, wireless systems are moving to 710-790MHz (secondary user status). Most rental companies have already expanded their portfolio in this range, though this process has not been completed yet. They especially have invested in the 2000 Series systems, and broadcasters are also renewing their stocks or getting existing equipment converted for this range. Individual users are a bit more reluctant, but the topic is increasingly getting their attention of course – although many still can't actually believe they will soon have to leave their accustomed spectrum, which was free of charge in the bargain. The 710-790 MHz range requires a license.

**DB:** Well, I think the days of 'clear space' are rapidly coming to an end. The challenge will now be to design radios that can operate in crowded RF environments. Our system was designed for just this reason and is highly reliable in such a crowded space as the 2.4GHz band. As customer demand for mobile products increases and bandwidth shrinks, only those radios that can operate in crowded RF environments will succeed as more and more bandwidth shrinks away. Everyone will benefit as these new digital technologies offer marked improvements to sound quality, reliability, and ease of use.

**TT:** Beirg has been instrumental in convincing Ofcom how vital a role radio mics play in the UK, and often manufacturers confuse the issue claiming that Channel 69 is licence free – which is absolute rubbish. Since 2004, only a handful of manufacturers tried to explain that this was a big deal – a tiny portion of the industry – until money was mentioned. The fact is that you need a license for everything else except 863-865 MHz, which is the beginning of the TV channel spectrum. I think that it's absolutely possible that in

five years from now, no manufacturer will make an analogue wireless mic, because of the huge surge we're seeing now in digital technology.

For now, audio quality and latency are the most important factors, which is why people should be binning their old gear and purchasing Channel 38-ready equipment. Also, because of this ignorance, I fully expect many complaints to come in to manufacturers from clients saying 'my radio mic sounds horrible' come the switchover. That's why we all need to raise awareness and educate people on this. Surrender your old systems to funding where possible and migrate to the new allocated bands.

**WF:** There is a definite trend in digital wireless systems going on. A much better audio quality and a better resistance against interference is also a big argument for digital systems. New developments will have easier interfaces and network capability, but the price will increase due to the tighter frequency spectrum, which makes it necessary to use more expensive components.

**KP:** I think that people look for far greater flexibility than in the past, because they really want to be able to work anywhere in the world, which in turn means a set of brand new challenges for us as manufacturers. In our market in particular, a lot of the equipment is for field use and is battery powered. A mains system in a studio based environment is very flexible in terms of the frequency hopping and frequency changing aspect, but as soon as you get to small portable units, the challenges really are far greater. People are always looking for battery powered systems that have half-a-day's worth of life in them. We don't want to be forced to make those compromises. On the other hand, I think there's a chance that we will be forced down the route of wider frequency bands and have a deal of selectivity. It is essentially two conflicting demands

in the changing wireless world which is being more and more impacted on by wireless techs such as YMAX and anything on the TV spectrum.

#### **To Sum Up...**

In conclusion, there is plenty to talk about in the modern day wireless world. License-wise, it seems there may be a certain lack of education in terms of what's free and what's not, which looks like it could surprise more than a few people once the switchover to Channel 38 takes place! But it also looks like each of these manufacturers has a vision of how to deal with it when it does

happen, and is altering its current systems accordingly. Perhaps more interesting though is the recent trend towards digital wireless systems; and I think it raises a serious question or two: could this be the beginning of the end for analogue wireless systems? And does that mean every manufacturer will eventually be forced to switch to digital? According to Shure's Tuomo Tonolen, that could well be the case as soon as 2016, and it'll be interesting to see how much traffic ends up on the already crowded 2.4 GHz range. We'll just have to wait and see.



# Allen & Heath

## 40 Years Of Audio Excellence & Innovation

For over 40 years, Allen & Heath has been at the forefront of professional sound. Renowned internationally for its British-designed, high quality products, the company has set many benchmarks in sound technology, developing industry standard products for the DJ, PA and House of Worship markets, and becoming an early pioneer of distributed digital mixing systems.

Allen & Heath started out providing mixing consoles for the bands Genesis, The Who and Pink Floyd. Its current portfolio covers a broad spectrum of the industry, with recent users including Adele, AIR, President Obama's Nobel Peace Prize ceremony, ESPN Sports, Sasha and Deadmau5.

Products include the iLive digital mixing family, iDR digital installation series, Xone DJ range, ZED USB compact mixers, XB-14 dedicated broadcast console, GS-R24 and ZED-R16 recording mixers, GL multi-purpose series, MixWizard compact series and PA portable series.

### iLive Digital Mixing System

Allen & Heath's iLive digital mixing systems have built a strong reputation for audio quality and ease of use. Featuring an extremely flexible architecture with large-scale audio distribution and control, iLive is designed to bring an analogue feel to digital mixing and draws on the company's extensive

experience in live sound and digital technology.

There are several Control Surface and MixRack variants, which can be mixed and matched in any combination and share the same firmware, so that show files are transferable between systems via a USB key. They connect together with CAT5 cable and use the Ethernet protocol for control, such as EtherSound or Allen & Heath's proprietary ACE (Audio Control Ethernet) link, which allows cost effective long distance point to point control and audio communication over a single CAT5 cable up to 120m in length by combining digital audio and Ethernet traffic.

All MixRacks feature the same 64x32 RackExtra DSP mix engine architecture, providing processing for 64 channels, 32 mixes, and eight stereo FX processors. The latest dualcore DSP technology handles all the FX and mixing along with the full dynamics, EQ and delay for all inputs and outputs

### GS-R24

Specifically aimed at busy project studios, the GS-R24 is a high quality analogue console and summing mixer with boutique preamps, parametric EQ and comprehensive routing and monitoring options, combined with full DAW integration thanks to MIDI controllers and automated faders. It is available with a choice of interface cards: an Analogue card and a 32-channel Firewire card with ADAT optical connectivity.



simultaneously. The flagship iDR10 MixRack is modular, with ten slots for eight-channel analogue or digital audio interface cards, while the iDR-16, iDR-32, iDR-48, and iDR-64 MixRacks have fixed I/O arrangements.

The Port B option slot allows further audio networking possibilities, for example digital mic splitting and multi-track recording, with ACE, EtherSound, Rocknet, Dante, MADI, ADAT, and Aviom™ interfaces available, while a built-in network switch and MIDI ports at each end allow remote control using laptops, touch tablets and MIDI devices. The racks are compatible with the Allen & Heath PL Series remote controllers and iLive Editor software, a user-friendly JAVA-based program that enables both offline set up and online real time operation of the system with or without a Surface connected. Allen & Heath has also designed the iLive Tweak app for iPhone and the MixPad app for iPad, providing control of iLive's essential functions for live mixing.

There are 7 iLive Control Surfaces – the rackmountable iLive-R72, iLive-80, iLive-T80, iLive-112, iLive-T112, iLive-144, and the iLive-176 – which are designed to reflect the look and feel of an analogue console and which an experienced sound engineer would be

able to walk up and use immediately. The faders are motorised and grouped in sections and layers, giving up to 176 control strips on the largest size surface. There is an LCD with multi-colour backlight above each fader for labelling and colour-coding channel information. The channel controls for preamp, filter, gate, EQ, compressor and limiter/de-esser are laid out across the top of the surface on rotary controls with LED indicators, while a colour TFT touch screen presents a graphical view of the processing and access to the automation and set up screens. Audio at the surface is also available for convenient interfacing.

iLive is derived from the iDR digital installation mixers, the iDR-8 and iDR-4, which are also compatible with an iLive system, enabling the configuration of comprehensive, integrated venue audio systems.

### ZED Series

The ZED range of small format, USB-equipped mixers is designed to be flexible and affordable for the working musician to use on the road or in the studio.

### GL Series

Based on dual-function capability, which Allen & Heath pioneered in the early 1990s, the GL range has been developed with a feature set dedicated to modern sound engineering, such as ambient matrix recording, fast IEM mixing, aux-fed sub, and engineer's wedge monitor.

### MixWizard Series

The multi-purpose and compact MixWizard series still retains its market leading status due to a strong blend of professional features, including an all-metal chassis, individual circuit boards, nutted rotary controls, smooth 100mm faders, LED metering, as well as 6 aux sends, 4 band EQ, digital FX and expansion capability.

## ALLEN & HEATH

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# Avid

## VENUE: A Revolution in Live Sound

Avid VENUE is a state-of-the-art live sound production environment that delivers studio-grade sound, unprecedented reliability, powerful performance, and complete ease of use.

From intuitive consoles and easy-to-use VENUE software, to Pro Tools® integration and the widest array of TDM processing at your fingertips, VENUE is shaping the future of live sound. VENUE systems feature:

- Amazing sound designed by the same company that made Pro Tools the industry-leading digital audio workstation. VENUE systems deliver the same amazing sound quality to live sound environments.
- Rock-Solid Reliability with redundant power supplies and the industry's first 'backup mode' feature allowing you to continue mixing the show without any audio loss should you ever need to reset the host computer.
- Fully integrated plug-ins with direct support of the same high-resolution audio plug-in format used in countless Pro Tools-equipped recording studios.
- Virtual Soundcheck with Pro Tools integration offering an innovative workflow for sound checking, and allowing you to fine-tune the mix to the current venue without requiring the presence of the performers.

*The VENUE Mix Rack system features the compact Profile console and the all-in-one Mix Rack.*



- Complete compatibility across the VENUE product range with the same software platform.

Whatever your application, Avid offers four main systems that can be expanded and customised for specific applications and a variety of interface needs. From concert and broadcast performances, to house of worship and theatre installations, VENUE systems can be re-scaled by simply adding or switching out VENUE components.

### VENUE D-Show System

For the ultimate in versatility and scalability, the VENUE D-Show System is based around the VENUE D-Show console and employs a VENUE FOH Rack and Stage Rack processing and I/O system. This system offers the greatest amount of I/O and console expandability, enabling it to accommodate even the largest ensemble performances.

### VENUE Profile System

The VENUE Profile System is based around the 24 fader VENUE Profile console and employs a VENUE FOH Rack and Stage Rack processing and I/O system. This system offers great I/O expandability and a compact console, providing maximum power in a smaller footprint.

### VENUE Mix Rack System

The VENUE Mix Rack System is based around the VENUE Profile console and employs the all-in-one

VENUE Mix Rack processing and I/O component in a single 11U rack.

This compact system offers an affordable entry into VENUE.

### VENUE SC48

VENUE SC48 is a fully integrated live sound system that combines all I/O, digital signal processing, and tactile control into a single console, making it the most affordable and portable VENUE system yet. The console not only features the celebrated characteristics of VENUE, including studio-quality plug-in support, seamless integration with Pro Tools LE systems, and complete show file portability, it offers several innovative new workflows that streamline the mixing process, allowing you to concentrate on mixing the show instead of operating the board.

### VENUE 2.9 Software

At the heart of every VENUE system is the same software platform. Turn your VENUE system into the most advanced live sound production system ever, and spare yourself from tedious, time-consuming tasks. With VENUE 2.9 software, featuring VENUE Link – an intelligent, two-way communication tie – the VENUE live sound and Pro Tools recording worlds collide, enabling you to tackle complex productions, show archiving, and Virtual Soundcheck from one fully integrated solution, with speed and ease. VENUE 2.9 software adds features to create new Pro Tools sessions based on your currently loaded VENUE show file, import VENUE channel names into Pro Tools, and sync VENUE snapshots and Pro Tools markers. Plus, you gain even



*VENUE 2.9 software offers enhanced communication between Pro Tools and VENUE systems through VENUE link.*

more functionality with VENUE SC48 and Mix Rack with newly supported hardware options; support for the VENUE IO16 Option Card for VENUE SC48 and support for the IOx Option Card with Mix Rack-based systems.

### Introducing the VENUE MADI Option Card

Bring your VENUE live sound workflow to any MADI (Multi-channel Audio Digital Interface) environment. With each VENUE MADI Option Card, you can send up to 64 channels of audio from your VENUE system to other MADI devices – including routers, digital mixing consoles, and mobile recording setups – and vice versa. Simply install the card into your system's FOH rack or mix rack to bring industry-standard MADI connectivity to VENUE.



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# Crown Audio: On Stage Power

Crown Audio products form a vital and integral part of many live stage arenas. We find out why.

Since its founding in 1947, Crown Audio has become one of the largest and most respected manufacturers of Pro Audio amplifiers. Lennart Dahlgren of Harman's Swedish distributor Septon Electronic talks about the pro sound and installation market and Jim Risgin, VP of On Stage Audio International, reveals why Crown Audio has been an integral part of the Illinois-headquartered rental company's inventory for the last 10 years.

**Lennart Dahlgren –  
Septon Electronic**  
**What do you feel sets Crown Audio apart over other manufacturers?**

To be honest, I believe that the sound quality is its biggest strength; when I first listened to Crown Audio products, the difference in the audio was bigger than even I expected myself. Also, the built-in DSP and System Architect are big plus points; it helps to have that same platform for the entire Harman brand.

**You take care of Crown Audio's distribution for Sweden – what's an average working day for you?**

Yes – that's where my focus is. I find myself dealing with clients on a daily basis, concentrating a lot on the system solution. And also, with the System Architect and the networking between units it definitely helps make my job a lot easier.

**What units are the most popular and why?**

Well, there is demand for I-Tech, and XTi is also very popular, which is a cheaper amp with DSP built in.

**A kind of entry level in Pro Audio?**

Yes. And the new XLS Drivecore Series has a built in digital crossover; it's very lightweight and it sounds good as well – it's certainly a more affordable way into Pro Audio equipment.

**Jim Risgin –  
VP, On Stage Audio Inc.**

**So you're a big user of Crown Audio amplification? What stands out in your opinion?**

Yes – for about 10 years. We switched over after using different manufacturers and found the reliability and sound quality to be enough of a difference to invest in an entirely new amplifier line. Since then it's been the workforce of our inventory; we recently invested in a large number of their VRACK packages.

**Why the VRACK particularly?**

Because it's a pre-packaged system which enables us to buy the amplifiers one day and have them out generating revenue for us within a week instead of having to go through it all ourselves. We found that to be a tremendous advantage. It's also cost competitive – and it's integrated into the System Architect control software which makes it even easier to use; that's the networking and DSP that's

built into the amplifier. It's unique because it's a rack package, it's got control panels, and it's generally easier than dealing with individual units.



**You've been using Crown Audio for 10 years. Have you seen the brand develop much over that time or have you always regarded it as a market leader?**

I have always thought of Crown Audio as a well established top brand, but in the last 10 years I believe that it has established itself as the pinnacle of networks: Harman's proprietary network control system – HiQnet; and a distributed DSP amplifier platform. It has networked more amplifiers than probably all other manufacturers put together; and in this day and age that is a huge strength, which, along with its outstanding audio quality and reliability, is the reason we consider it an industry leader."



Crown Audio  
www.crownaudio.com

## Crown On Stage

On Stage Audio (OSA International) was established in Chicago, IL in 1985. Now in its 25th year of operation and with offices all over North America, VP Jim Risgin says that between the Chicago and Las Vegas offices alone, OSA International covers well over 100 shows per month. 70% of those shows include Crown Audio amplifiers, which Risgin swears by. He believes that Crown Audio offers 'the complete package' with its range of products and its ever-reliable support team, which he claims is the best he has ever worked with.



"Whenever we've needed a product replaced, we've had it delivered either on the same day or overnight," he says, "and a member of Crown Audio's team will always come on-site just to make sure that I'm happy; I have never had such a good service from any other manufacturer."

As well as the new high-output pre-packaged VRACK amps with

built in DSP, Risgin reveals that OSA International also stocks a host of other Crown Audio amplifiers, which are used in a variety of Pro Audio applications.

"We have a bunch of I-Tech, I-Tech HD, and the older Macro-Tech models," says Risgin. "The smallest applications are the simple ballrooms with breakout systems – a couple of speakers on sticks; and the largest are the arenas, some of which have over 20,000 seats."

"Our ability to set amplifiers in unique and sometimes bizarre locations means we often get stuck in challenging situations," reveals Risgin. "Having the ability to distribute, control and monitor with reliability is critical to us."



# JoeCo BLACKBOX

## Multi-track adopts MADI and Dante

The BlackBox family of multi-track machines for live use is extended with the arrival of the latest MADI and Dante-enabled versions of the BlackBox Recorder, alongside the new BlackBox Player for dedicated multi-channel playback.

Developed to solve the inherent problems of working with computer-based systems in a live performance environment, the BlackBox Recorder provides engineers with a computer-free, high-quality solution for multi-channel live audio capture in a compact 1U format. With an increasing range of analogue and digital interface options, the BlackBox can operate at up to 24-bit/96kHz storing audio on a USB2 hard drive in multiple mono Broadcast WAV files, making the audio available for instant import into any Mac- or PC-based Digital Audio Workstation. The standard 24-channel devices play an increasing role in broadcast, film, and TV sound, post production, and theatre, as well as capturing live performance. The latest additions to the BBR family incorporate MADI and Dante multi-channel networking technologies.

### BBR64-MADI

The BlackBox BBR64-MADI Recorder can capture the full 64 channels of MADI data at standard sample rates directly to Broadcast WAV files on an external USB2 drive, yet still only occupies one unit of rack space. Double sample rate MADI recording (96kHz) is also accommodated. The recorder sports both coaxial and optical MADI connections for interfacing with any MADI equipped console or other equipment. Additionally, the BBR64-MADI caters for 56-channel

legacy MADI and can record an additional eight channels of analogue (balanced line in) for capturing the audience or general ambience.

The BBR64-MADI will lock to or generate word clock, as well as locking to the received MADI data stream. The MADI input is echoed to the output to ease integration.

### BBR-Dante

The new BlackBox BBR-Dante Recorder can connect to any Dante-enabled network device from a broad range of console and converter manufacturers to offer 32-channel recording and playback. Supporting standard network components and switches (Gigabit Ethernet over Cat 5 cable), it can similarly record up to eight channels of analogue (balanced line in) alongside the inputs from the Dante network. For synchronisation purposes the BBR-Dante system can lock to and generate word clock, or lock to the incoming Dante audio stream.

### Monitoring: A New 'Look'

The impracticality of producing a local monitor mix has led to a change of approach. Instead of a fully controllable internal mixer, individual channels or pairs of channels can be monitored on an internal PFL bus providing both hi-resolution metering and headphone output. Other unique



BlackBox features remain including the Safe 'n' Sound record recovery function, remote control capabilities, and the ability to stack multiple units for even larger track counts.

### The BlackBox Player

The BlackBox Recorder's core technology also forms the basis for the BlackBox Player, a dedicated multi-channel playback device able to simultaneously replay up to 24 channels of high quality audio at up to 24-bit/96kHz. Designed to replay backing tracks and multiple surround stems, the Player meets a range of requirements from solo artists or bands using pre-recorded backing tracks, permanent installations such as museums, galleries, and themed entertainment needing reliable playback facilities, through playback applications requiring timecode synchronisation, or broadcast applications involving timed multi-language or multi-station play-out.

Playback material can be loaded from any DAW capable of creating Broadcast WAV files and stored on

a standard USB2 drive or Flash RAM drive. Set lists can be configured into simple XML format playlist files. Songs are automatically cued for instantaneous replay and multiple playlists can be stored ready for quick changes or alternative show formats.

### The Show Must Go On

Simple to operate and triggered from a variety of sources including footswitch, QWERTY keyboard, timecode, and MIDI commands, the Player also has a number of integrated safety features ensuring that the all-important "show must go on" criteria are always met.



### INFORMATION

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For details of your local distributor, please visit:  
<http://www.joeco.co.uk/main/distribution.html>





# Midas – The Audio Gold Standard

An audio console is, first and foremost, about audio. Midas has always set the gold standard for live sound, and continues to ensure that the adoption of new technologies does not compromise this in any way.

## Midas Digital Systems Overview

The Midas XL8 and PRO series digital mixing systems consist of a control centre and a number of fixed or configurable 19-inch rack modules, which are inter-connected by a networked audio and data system. The network carries both proprietary control data and open architecture AES50 digital audio via readily available standard CAT-5e/CAT-6 and fibre optic cabling and connectors. This 'system' approach means Midas provide not only a mixing console, but also a complete analogue and digital audio control and distribution system.

The Midas PRO series comprises of three control surfaces, modular remote processing engines, and a choice of five different models of I/O hardware. PRO3 is the natural successor to the industry-standard Heritage 3000, with its 48 (+8) inputs and 27 busses. However, the PRO3 can be upgraded at a later date to full PRO6 and PRO9 specification, offering up to 88 inputs and 35 buses. The PRO series consoles are all expandable up to 288 inputs and 288 outputs at the network level.

The Midas XL8 is the perfect solution for high-capacity and high-profile applications, both touring and fixed install. It has a network capacity of up

to 432 inputs and 432 outputs in 18 different locations, up to 144 simultaneous channels, and 51 mix busses, plus built-in tolerance to any failure scenario.

## Midas Sound Quality

The Midas reputation for fantastic audio quality has evolved over 40 years of research and development. By designing the best mic pre's, equalisation and using superior components, Midas has carried this tradition into the digital realm. Adding the best converters and custom processing algorithms to the mix, Midas takes audio quality to another level. Midas digital systems are the only live sound systems in the world to have a comprehensive and automatic latency management system. Which, in addition to managing all internal routing and processing latency, also includes compensation for external analogue inserts. This means that all audio samples are synchronised before summing, resulting in absolute phase coherency at all outputs.

Midas digital feels, as well as sounds superb. All the variable controls on the console are genuine analogue high precision potentiometers, not mechanical encoders. These access the FPGA-DSP engine through precision

instrumentation A-D converters and Midas' custom interpolation algorithms. This means that as well as all audio, all the operator input is fully interpolated to ensure a linear, analogue-style, silky smooth feel to your mix.

The Midas microphone pre-amp is the one by which all others are judged. Still built from discrete components and still based on the designs which were so successful in the legendary Midas analogue consoles such as the XL3, XL4, and Heritage, the current expressions in the XL8 range and PRO Series sound better than ever. Whether you want pristine, transparent reproduction, or that renowned Midas warmth and colouration, Midas' dual (analogue and digital) gain stages enable you to shape the mic amps' character according to your own preference.

Mix engineers working on analogue consoles routinely combine signals with different signal paths and processing and expect to do the same with digital. On many current digital consoles, combining signals in this way leads to the summing of signals that are in effect partly out of phase. This causes undesirable comb filtering effects, where specific frequencies are cancelled out completely. Midas are the only live digital consoles to have comprehensive automatic time alignment to correct any path related delays, including latency introduced by additional A to D conversion on external analogue inserts.

The processing engines for both XL8 and PRO series systems are both of modular design, which provides N+1 redundancy of hardware in the form of a redundant module. This means peace of mind during a show and better commercial viability, as the cost of the system is not burdened with the cost of an entire backup engine. Also unique to Midas are the modular

I/O units which can be freely distributed into multiple locations. The digital audio network is easily configurable to route signals from where and by when they are needed since the patching is done a scene-by-scene basis.

## Digi-log Goes Midas

Continuing a policy of innovation, the VeniceF is Midas' first 'digi-log' console. VeniceF offers the simplicity and ease-of-use of a compact analogue mixer, combined with the power and flexibility of digital processing. Three models of this powerful, low-cost Midas are available, offering 16, 24, and 32 inputs respectively. All are fitted as standard with a digital FireWire interface, which, when connected to a laptop computer with appropriate software can facilitate multi-track recording, playback, live FX, and the ability to run any third party plug ins as inserts on an analogue mixer.

Equally important to Midas is the design and implementation of many new areas of technology, specifically in the area of digital audio networking and advanced console navigation methods. Midas continues to anticipate and accommodate the rapidly changing and expanding needs of audio professionals who specify Midas consoles for their major tours, festivals, international events, broadcast projects, and high-profile fixed installations.



## INFORMATION

### Midas Consoles

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Joel Lonky FoH for Rob Zombie on a Midas PRO6.

# Riedel Communications

## The Communications People Go Backbone



Riedel has proven expertise in fast and reliable communications solutions. RockNet audio networking together with MediorNet will rock your world.

Riedel Communications was founded in 1987. It designs, manufactures, and distributes sophisticated intercom, fibre, audio and professional radio technology for customers in the world-wide broadcast, defense, event, and theatre markets. The company is known for pioneering digital audio matrix systems, and is the market leader in fibre-network matrix systems. Riedel's product portfolio includes digital intercom and fibre optics solutions, digital audio networks, and professional mobile radio technology. Riedel is headquartered in Wuppertal, Germany and employs over 200 people in nine locations throughout Europe, Asia and North America.

Riedel's clients and projects have included all Olympic Games since the Lillehammer Winter Games in 1994. Furthermore, the company supplies all F1 Grand Prix circuits and various F1 racing teams with radio and intercom solutions. Events, broadcast networks,

industry clients, and theatres rely on Riedel technology.

The Red Bull Air Race Championship, where Riedel provides all communications and signal distribution solutions, integrating both HD video and audio signals as well as wireless and wired digital intercom systems, received with two Emmy Awards in 2009 and 2010 in the *Outstanding Technical Team – Remote* category.

### RockNet

Riedel's flagship audio network platform is RockNet, designed specifically for live sound applications. It is a cost-effective, integrated networking product, which was invented, designed, and optimised for audio contribution and distribution. RockNet provides ultra low latency and very high audio quality. It is easy to install as it's an integrated system that does not require any third party products. Only two types of cable are necessary

to hook up a network: microphone cable with XLR (male/female), and CAT5 with RJ45 (Ethernet). RockNet devices do not require breakout panels or any special cables and connectors, and up to 99 devices can easily be added to the network, which can be set up within minutes.

All devices can be configured intuitively by front panel push buttons. No particular IT or computer network know-how is needed to set up and operate RockNet. The control section of all 19-inch RockNet products provides the controls to set up and configure the unit without a computer. It incorporates three two-digit displays and six push buttons that are used for intuitive operation of a three level menu.

RockNet offers superior resilience, incorporating a streamline redundancy concept on device and network level. The network interface of each device features two interconnections for fail-safe transmission of audio signals on the CAT5 infrastructure. Based on a redundant ring topology, RockNet forms a self-healing network with no loss of audio in case of a connection fault between two devices. Lateral ultra-low latency asynchronous transmission enables RockNet to support various redundant network topologies and to provide real-time isochronous data transport along with packetised data such as TCP/IP. The data rate is 400 Mbits/s on a CAT5 cable and the number of nodes is limited to 99.

For the RockNet 300 series there are currently seven audio interfaces available, including the new RN.335.DI digital input interface, which provides eight digital inputs via AES; and the RN.334.MD MADI interface which offers electrical and optical inputs and outputs. Also available are the RN.301. MI microphone/line input interface; the RN.302.LO line output interface; the RN.331.DD digital I/O interface;

the RN.332.DO digital output interface and the RN.333.DI digital input interface.

RockNet 300 network accessories include the RN.362.IR In-Line Repeater, which extends the length of the CAT5 based infrastructure between the two RockNet 300 devices to a maximum of 450m; and the 350 series fibre interfaces, which are designed to be used for applications where extended distance between network devices is required. They are equipped with universal transceivers for single or multi-mode fibres to meet the respective infrastructure requirements.

### MediorNet Fibre Backbone

With Riedel's fibre-based signal transport and distribution solution MediorNet, the flexibility of event installation can be expanded even further. MediorNet provides a system wide backbone infrastructure that integrates various different signals such as audio, HD video, communications, and data signals into one single integrated network. This also includes integrated software-based signal processing and conversion. With the just recently unveiled MediorNet Compact, this technology is not only available for large installations but also for smaller applications.

### MediorNet

MediorNet combines signal transport, routing, signal processing, and conversion into one integrated real-time network solution. This includes signal routing, allowing the user to send any incoming signal to any output or even to multiple outputs.



MediorNet also includes broadcast-quality processing and conversion on board. These features are software-based so they can easily be expanded in the future without any changes to the hardware.

MediorNet Compact is the cost effective and easy-to-use entry into the Riedel MediorNet world. It is the first fibre-based 21st century multi-media stagebox providing the flexibility of a true real-time media network, including integrated signal processing, at the cost of simple point-to-point products.

With a network bandwidth of 50 Gbit/s MediorNet Compact provides enough capacity for bi-directional transport of 12 HD-SDI signals, dozens of MADI streams, or hundreds of audio channels – ideal for streamlining the infrastructure of any application.



### INFORMATION

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# Roland Systems Group

## Inspire the Enjoyment of Creativity

Roland Systems Group is dedicated to supporting audio and video professionals who demand excellence in terms of performance and system design, consistently providing the entertainment industry with the best tools to capture, distribute, mix, and record creatively.

### Innovation – An Evolving Story

From the dawn of the electronic musical instrument, Roland Corporation has been at the forefront of music and event production technology with the continual design and release of innovative and original products.

Roland's strategy is to be a provider of the best hardware with which to interface the best software and allow these products to be accessible to everyone. Indeed one of Roland Corporation's slogans includes "Be the BEST rather than the BIGGEST".

From high quality PA systems for concerts, events and production, to audio visual equipment for conference, retail, and commercial installations, the comprehensive range of products available from Roland Systems Group guarantees the reliability required by such demanding applications but still delivers supreme sound quality – from a company that truly knows 'sound'.

Roland Systems Group has the experience and knowledge to combine audio visual and video equipment to provide complete solutions and thereby affording comprehensive support for the live production industry.

Roland pursues innovation that leads to the technologies of the future, conducting R&D from the perspective of industry leader and developing original core technologies and innovations, many of which have earned Roland Corporation

the accolades of Japan's First and World's First.

### Reliability & Superb Quality

REAC (Roland Ethernet Audio Communication) transfers 40 channels of audio in each direction at 24-bit and up to 96kHz including control messages – all over a single Cat5e/6 Ethernet Cable or Optical link. The digital audio sent by REAC over Ethernet cable prevents signal quality losses, ground hums, or other interference typically found with analogue snakes.

### Easy & Intuitive

No IP address setup is necessary as devices are automatically recognised by the system and the appropriate menus present themselves. REAC

provides pristine digital audio in a very light-weight, inexpensive, and easy to install cable format. Dedicated knobs, buttons, and a simple user interface eliminate any confusion when having to make quick adjustments.

REAC Embedded Power is a unique Roland technology that enables the transfer of not only the digital audio but also the power required by the connected device – all via one Cat5e/6 cable.

### System Expandability & Flexibility

Once infrastructure is installed, adding in the products and expanding the REAC system is intuitive and simple

to do. This next generation of digital audio system can easily be incorporated into an existing analogue infrastructure and the connection of a digital snake provides the most noticeable absence of interference associated with standard multi-cores.

Simply plugging in a CAT5e/6 cable into a computer installed with Cakewalk SONAR Producer provides the ability to capture up to 40 channels of live audio – or alternatively simply connect to the R-1000 48-track Recorder/Player for dedicated recording on hardware of up to 48 channels along with Virtual Soundcheck and selective multi-channel playback capabilities.

### New Possibilities

When personal monitoring is a requirement, then the M-48 Live Personal Mixer offers musicians the next generation in unprecedented flexibility to control exactly what they want to listen to during their performance.

Once a REAC network is running and connection between Roland Digital Snakes and Roland V-Mixers is established the system will provide a unique mixing capability at FOH, monitors, broadcast splits, and recording facilities.

A new addition this year to the product line-up is the Roland M-480 48-channel Live Digital Mixing Console, a desk that provides superb sound quality, powerful functions, expandability with console cascade, and intuitive operation. The V-Mixing system continues to introduce new



possibilities to the live mixing market.

By using the Roland S-MADI REAC MADI Bridge, connection to other digital systems using MADI becomes possible and provides the gateway for all REAC devices to be able to communicate with other digital devices.

However, if you are a professional seeking a solution to interconnect between video mixers and audio mixers, Roland has an additional core technology called V-LINK.

This technology enables the operator to control the audio levels of the sources being presented on the video output screen.

Beyond V-LINK, Roland Systems Group has additional products in its line-up including the VR-5 AV Mixer & Recorder, providing capture and live streaming capabilities for all types of productions and presentations.

Above all, Roland Systems Group can provide a one-stop shop solution for engineers, installers, designers, and consultants.

**Roland**  
Systems Group

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# SADiE 6 LiVE: Robust Reliable High End Recording

Taking location multi-track recording to a higher level, SADiE's LiVE Series of recorder/workstations takes on the new challenges of large scale concert recording, location TV sound, and on-location sound capture. Acquired by Prism Sound and with a LiVE agenda...

## Origins of the SADiE 6 LiVE Series Recorders

The idea to develop a robust and reliable range of location and live sound recording systems began in 2004. Already many recordists were taking laptops and portable SADiE BB2 on location for a variety of tasks, however there was an increasing need for a multi-track solution. Combining recording and editing software with robustness and reliability were crucial needs, so the SADiE LRX was born.

In 2008 the Prism Media Products Group took ownership of SADiE, and building on SADiE's already well established footing in live and location recording introduced the SADiE LiVE range of recorders.

## Reliability & Convenience

Toby Alington of Richmond Studios expands on this. "SADiE is one workstation that never let us down, we just plugged in MADI wordclock and timecode and the system ran perfectly." Toby used an LRX 2 at the BBC Children in Need concert at the Albert hall to record acts such as Lily Allen,

Dame Shirley Bassey, Paolo Nutini, Snow Patrol, Sir Paul McCartney, and Take That.

Equally at home front of house at a concert installed in an OB truck or on location, the LRX2, Live H64, H128, and Solid State workstations all include the option to mirror record giving the ability to record to two simultaneous destinations.

## SADiE LiVE Series

The current SADiE LiVE range consists of the LiVE LRX2, LiVE H64, LiVE H128 large scale recorders, and most recently the newly introduced Solid State LiVE recorder and workstation.

All of the systems have been developed with a significantly expanded track count, allowing the LRX2 to record up to 64 tracks. The LiVE H64, H128, and Solid State systems are capable of recording up to 128 tracks via MADI, AES, Mic or Line respectively, using the same modular I/O cards as the LRX2.

## High Quality Sound Capture

Is all this convenience and portability at the expense of sound quality?

Absolutely not, as the growing list of high-end recording engineers has proven. SADiE's sound is regarded by many audio professionals as being second to none.

## The Hardware Packages

The LRX2 connects via USB to any computer running Windows while the hardware comprises of an all metal constructed unit, designed to be the 'base' for the connected laptop. It houses all the DSP, I/O cards, monitoring, time-code, video, and AES reference connections, as well as the small assignable mixer with motorised faders. Power is connected via a four-pin XLR. It is also possible to power the unit from a 12V battery pack.

The Live H64, H128, and Solid State workstations are supplied as turnkey solutions with fully modular I/O capabilities. The systems are housed in a 4U rack mount housing with an optional 3U multi-channel interface box for the I/O

SADiE records using the Broadcast WAV format, with full Metadata support provided as standard. A DV-AVI video stream may also be simultaneously captured for reference. Sessions created in the single-screen MTR software can be opened in any of the full SADiE software Suites for full post, mastering, multi-track editing, and Radio production operations.

Live F.O.H Mix Engineer Richard Barling used a SADiE LRX2 location audio workstation on the three-week Friendly Fires tour in the United States. "The LRX2 performed very well," Barling says. "I really like the LRX2 because of its size and weight – I didn't have to carry around massive flight cases, etc, which was handy as this tour was in the US," says Barling. "In fact, at one gig in Canada we turned up 45 minutes before doors



opened. The combination of the Vi6 and the LRX2 meant that I was able to set up and

start making noise within 20 minutes of the gear arriving at a F.O.H position"

SADiE LRX2 Location Recorder Located under the Friendly Fires FOH console.



## The Software Packages

The LRX2, H64, H128, and Solid State systems are supplied with the dedicated 'MTR' (Multi Track Recorder) software. In addition there are four fully featured application specific SADiE 6 software suites available:-

- Radio Producer
- Post Production
- Mastering
- Sound Suite (flagship)

# SADiE 6 LiVE

## INFORMATION

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# Sennheiser – A Passion for Sound

From big live shows to intimate club gigs, Sennheiser microphones and monitoring systems ensure optimum live sound for every type of venue and event.

Passion for sound and music is the common denominator in the audio business, from the manufacturers of audio equipment to the bands and artists that rely on their tools. This passion is almost palpable at Sennheiser, and is reflected by the products the company offers for the live sound business.

## Wired evolution Series Stage Microphones

Designed with the aim of providing a complete range of microphones for vocals and backline, evolution microphones were launched in 1998. Since then, they have become a standard on stages around the world, and are known as rugged, reliable tools for the live sound engineer. The evolution 600 line offers instrument microphones for the complete backline, while the 800 line are vocal microphones that cater for any stage situation.

The most recent line, the award-winning evolution e 900 series, is the pinnacle of evolution live microphones, including both vocal and instrument microphones. The range encompasses everything from dynamic drum mics

(the e 901, e 902, and e 904) to the e 906 guitar amp mic and small-diaphragm condenser models such as the e 914 and the clip-on e 908. Vocal microphones are the cardioid e 935, super-cardioid e 945 (both dynamic mics), and the e 965, a true condenser, large-diaphragm stage microphone with switchable pick-up pattern (cardioid/super-cardioid).

The evolution series microphones are joined on stage by such all-time classics as the MD 421 – a firm favourite on guitar amps, toms, and wind instruments – and new microphones such as the MK 4 large-diaphragm side address mic, which excels at vocals, acoustic instruments, drums, and guitar amps.

## Wireless Microphone Systems

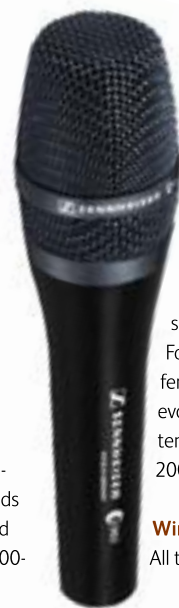
The name Sennheiser has become synonymous with reliable RF wireless transmission, whether it's a small gig with just a few wireless mics on stage or a large TV event involving multi-channel systems and complex RF environments.

The Sennheiser portfolio includes

a wide variety of evolution wireless G3 systems for instruments and vocals, the mic heads of the latter coming from their famed wired counterparts. Sennheiser's 2000 Series is the 'bridge' between evolution wireless systems and the company's top-of-the-range RF wireless equipment, and is equally at home on the stage and in broadcasting. Large touring productions, TV shows, broadcasts, and globally active bands rely on Sennheiser's 3000 and 5000 Series systems, SKM 5200-II handheld transmitters, SK 5212-II bodypack transmitters, and EM 3732-II dual-channel receivers, which are setting standards in multi-channel capability and reliability.

## Wireless Monitoring

From the first systems in the 1990s, wireless monitoring has come a



*evolution e 965: the top evolution model is a large-diaphragm true condenser, switchable between cardioid and super-cardioid patterns – also available as a wireless version.*

long way in becoming the standard rather than the exception.

The advantages are obvious: no stage clutter, less transport costs, and every artist (and engineer) gets just the mix he or she needs, at a sensible volume level.

For monitoring, Sennheiser offers its industry standard evolution wireless G3 IEM systems, as well as the new 2000 Series IEM systems.

## Wireless Systems Manager

All the above Sennheiser wireless

microphone systems and monitoring systems can be monitored and remotely controlled via the Wireless Systems Manager, a free software programme for Sennheiser customers.

This allows the engineer to pre-programme devices

prior to an event, scan the radio environment on site, and get frequency recommendations for mics, IEMs, and spares, check the RF field strength of transmitters, create control networks, and monitor the various mixes for a band via his or her own belt-pack.



## INFORMATION

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Large TV broadcasts and live shows rely on Sennheiser wireless equipment. (Photo: Ralph Larmann)

# Directory

This directory lists a selection of manufacturers who are directly relevant to or in some way applicable to the live sound technology market. Apologies if we've missed you out. If this is the case, please contact us on +44 (0) 1223 911639 or at mail@audiomedia.com and we will correct the omission in the downloadable pdf version of this supplement (available from www.audiomedia.com).

## **A&G Soluzioni Digitali**

www.aegweb.com

## **Ableton**

www.ableton.com  
+49 30 288 763 231

## **A-Designs Audio**

www.adesignsaudio.com  
+1 818 716 4153

## **Adam Hall Group**

www.adamhall.com  
+44 (0) 1702 613 922

## **Adamson Systems Engineering**

www.adamsonsystems.com  
+1 905 982 0520

## **AEQ International**

www.aeqbroadcast.com  
+1 800 728 05 36

## **Aevox Audio**

www.aevox.be  
+32 473 34 38 80

## **Alto Professional Audio Products**

www.altoproaudio.com  
+886 4 2233 5858

## **AKG Acoustics**

www.akg.com  
+43 1 86654 0

## **Alcons Audio**

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## **Alesis**

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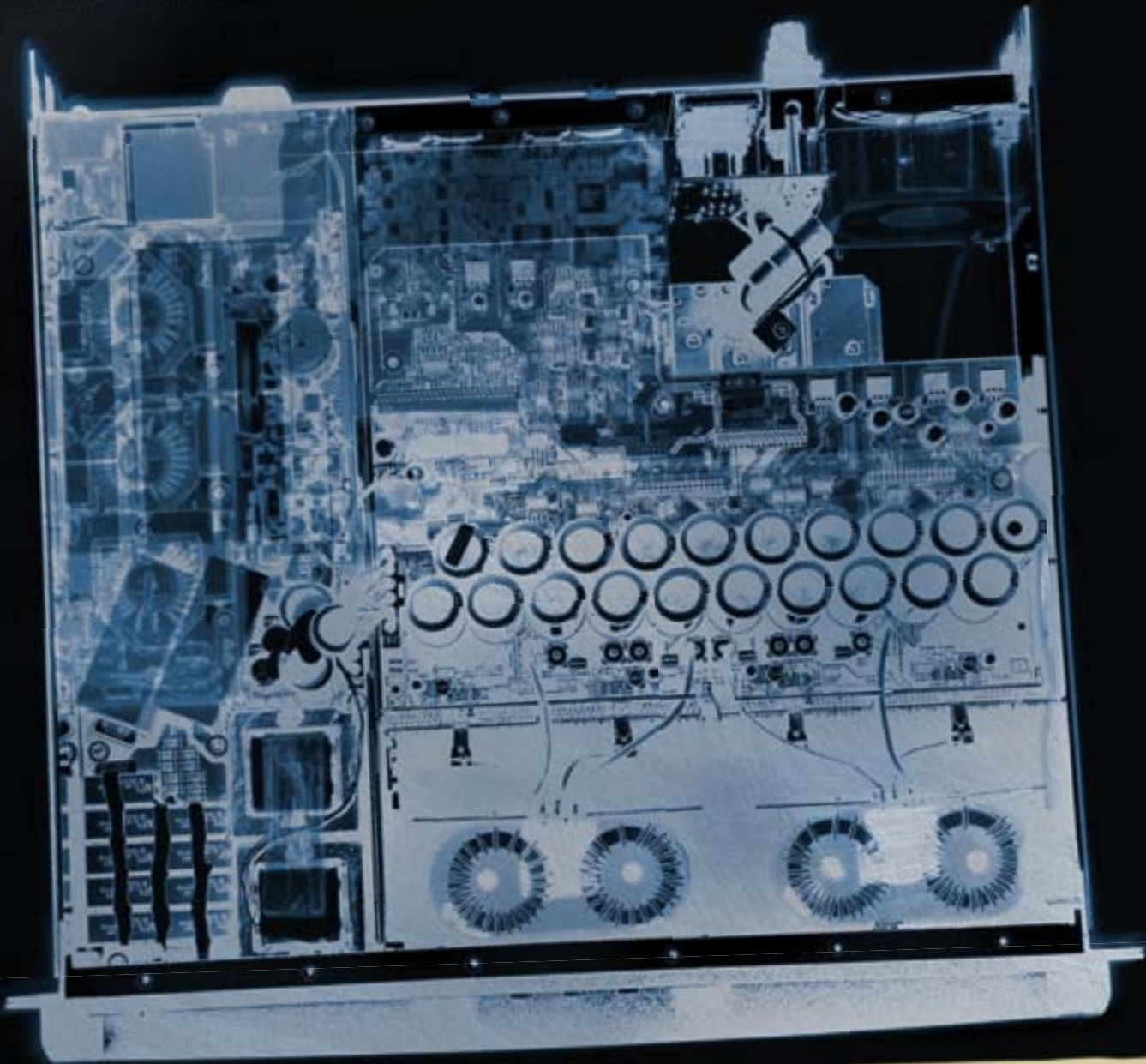
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