

Lighting & Sound INTERNATIONAL

January 2002

The Entertainment Technology Monthly

www.plasa.org/news

Technical Focus

- Latest technical issues; DSP systems reviewed

Pulp Fiction

- Jarvis Cocker and Pulp make a welcome return

Sizing up the Industry

- We look at the research conducted by PLASA and ESTA

TOTP Awards

- Top of the Pops live in Manchester

AES 2001

- Highlights of the New York show





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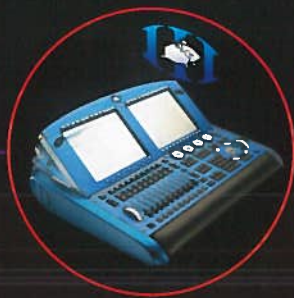
Technical Innovation,
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WINNER:

Entertainment Lighting
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January 2002 Volume 17, Issue 1

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Lighting & Sound INTERNATIONAL

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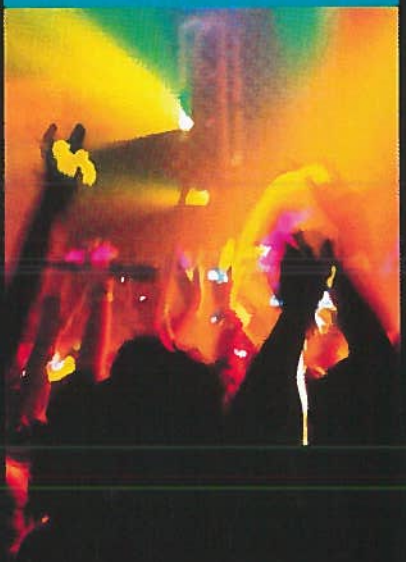
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Honorary Degree for Peavey Director

Ken Achard, managing director of Peavey Electronics' European subsidiary, received an honorary degree of Doctor of Science at a graduation ceremony which took place in London's Barbican Centre at the end of last year.



Ken Achard of Peavey UK

Conferred on him by the University of Westminster, the award was presented by the chairman of the Court of Governors, Sir Alan Thomas. The degree was in recognition of Ken's lifetime achievements in the music industry.

A veteran of 38 years in the music business, he became an acknowledged authority on vintage guitars in the early seventies, publishing one of the first works of reference on the subject - The History and Development of the American

Guitar - in 1978. A long-standing business and personal relationship with Hartley Peavey started in 1973 when Achard became one of the initial export distributors for American music and sound equipment manufacturer, Peavey Electronics. In 1976, Peavey Electronics Ltd was incorporated in the UK and Ken Achard was appointed managing director.

For 23 years a Member of the Council of the Music Industries Association (MIA),

Achard has worked tirelessly to promote music in education, supports the Prince's Trust initiatives working with young people through music, and is a Trustee of the industry charity Music for All. He has served as a governor of Corby's Brooke-Weston City Technology College, actively supports the Guitar Institute in London and numerous other college and University music programmes.

Bob Salt

Bob Salt, managing director of RW Salt Communications, the leading distributor of audio and communications equipment, has died while on holiday in Jamaica.



Bob Salt

Bob was very well known to many in the industry, and will be sadly missed. He was an energetic fund-raiser for charitable causes, and the annual RW Salt golf day, supported by Bob's friends and colleagues across the industry, raised more than £20,000 over the years for the charity RAFT (Restoration of Appearance & Function Trust).

Richard Lyon, chairman of RW Salt Communications, said: "Bob loved this company and its success was his continuing dream. It is my wish to preserve his dream in the best possible way, as it is also of the loyal people who have worked for Bob over time."

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Fuzion Heads East



Pro audio distributor Fuzion plc has extended its operations into Thailand with the setting up of a brand new distribution company, Fuzion Far East Ltd, based in Bangkok.

The new operation will carry a number of the same brands as Fuzion in the UK, as well as distributing lighting, AV and communications products. Fuzion's Tony Oates is managing director, with Sutat 'Pok' Kohkiat as technical director, Varuit Rattapong as sales and marketing director and Pongsak Pattanaphan as sales/product manager.

How the other half do business - Tony Oates and Sutat Pok toast the deal

Following discussions with operations in Thailand and research into the market, Oates saw an opportunity to create a separate company along the same lines as Fuzion plc in the UK, in order to concentrate purely on the distribution process. However, Oates points out that Fuzion Far East is not merely an extension of Fuzion plc's activities, but a completely separate entity in its own right. "This is a totally local operation staffed entirely, with the exception of me, by local industry professionals. My role, and that of Fuzion plc, has been to assist with some fresh ideas, resources and facilities. We also intend to focus on education and removing 'black magic' from technology. We have recruited a great team of talented individuals and we're already off to a flying start, so now we can buckle down to the serious business of making money and having fun!"

Photon 999

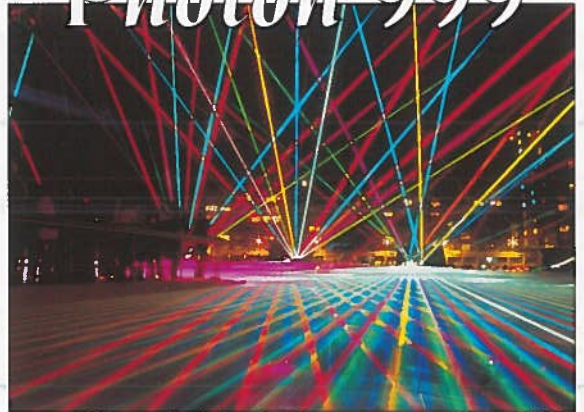
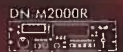


Photo: Kevin McCarthy

This stunning picture shows the first major European installation by Los Angeles-based artist Hiro Yamagata. **Photon 999** opened at the Guggenheim Museum in Bilbao, Spain, at the end of last year. Yamagata worked with a team of over 30 specialists to realise the installation. 15 laser systems (from Tarm Showlaser, Times of Change and Dymax Special Effects), including four of Coherent's new Viper lasers, are placed around the edge of a pool. These are projected to over 200 mirrors installed on 20m high JTE truss towers and Mylar holographic panels applied to the surface of the central walkway. The system is controlled by a custom software package designed by Laser Animation.

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PLASA Focuses on Health & Safety

In the latest addition to the range of services offered to its members, PLASA has appointed a full-time health and safety standards officer to provide advice and guidance to members on this increasingly important issue.



Ron Bonner.

Ron was previously Health & Safety manager for a local hospital trust, where he had responsibility for health and safety management for 3,000 employees. Ron's career is rooted in fire safety, beginning in 1972 when he joined the Royal Navy's Fleet Air Arm as a firefighter. In 1977, Ron joined the London Fire Brigade, where he spent 17 years. During this time, he attended incidents including the Kings Cross underground fire and the Marchioness disaster. After being injured in 1994, Ron retired from the Fire Brigade and joined the NHS. He was awarded the Diploma in Occupational Safety & Health in 1999. He is a member of the Institute of Occupational Safety & Health (IOSH) and of the International Institute of Risk and Safety Management (IIRSM).

PLASA's Matthew Griffiths said: "PLASA aims to provide real, practical services to its membership, and Ron's appointment is an important step in that direction. His expertise will go a long way towards addressing a whole range of requirements identified by our members. We are very pleased to have Ron on board, and we look forward to our members benefiting from having Ron available at the end of a phone line."

Ron comments: "It's an exciting prospect to work with PLASA members who undertake such a huge range of unusual projects within this industry. I'm looking forward to being able to assist them with health and safety queries, and help to ensure that their personnel are able to carry out their work as safely as possible."

Initially, Ron will be able to offer specialized support and advice covering all aspects of health and safety legislation, for both the UK and the European Union. Ron also plans to build a database of international health and safety issues and solutions, and would therefore welcome discussion on international H&S issues in areas where it is felt that PLASA could play a useful role.

E-mail: ron@plasa.org

PLASA Offers Export Boost for 2002

PLASA, in conjunction with British Trade International (BTI), will be conducting an extensive programme of government-funded overseas trade missions and other events aimed at boosting UK export trade, during 2002.

The programme is part of PLASA's ongoing aim to provide valuable export assistance to the UK entertainment technology industry.

PLASA is currently organizing exhibitor groups to some of the world's key international trade exhibitions, including the NSCA, USA (April), Pro Audio & Light Asia, Hong Kong (July), and Lighting Dimensions International, USA (October). This is the first time that PLASA has been successful in a bid for funding for the NSCA Show - an event aimed at the sound contracting/installation market. It's also the first time that PLASA has had an opportunity to provide a gateway to Hong Kong through its funding for PALA, a trade show and conference covering technology for entertainment and broadcast applications.

All UK-based businesses and organizations involved in exporting from the UK are eligible for the funding, whether a PLASA Member or not, and participating exhibitors can claim up to £2,300 towards their exhibition expenses.

A significant number of UK companies have already shown an interest in taking advantage of one or more of these opportunities.

For further details and deadlines contact the PLASA office on +44 1323 410335.

PLASA Issues CD-ROM

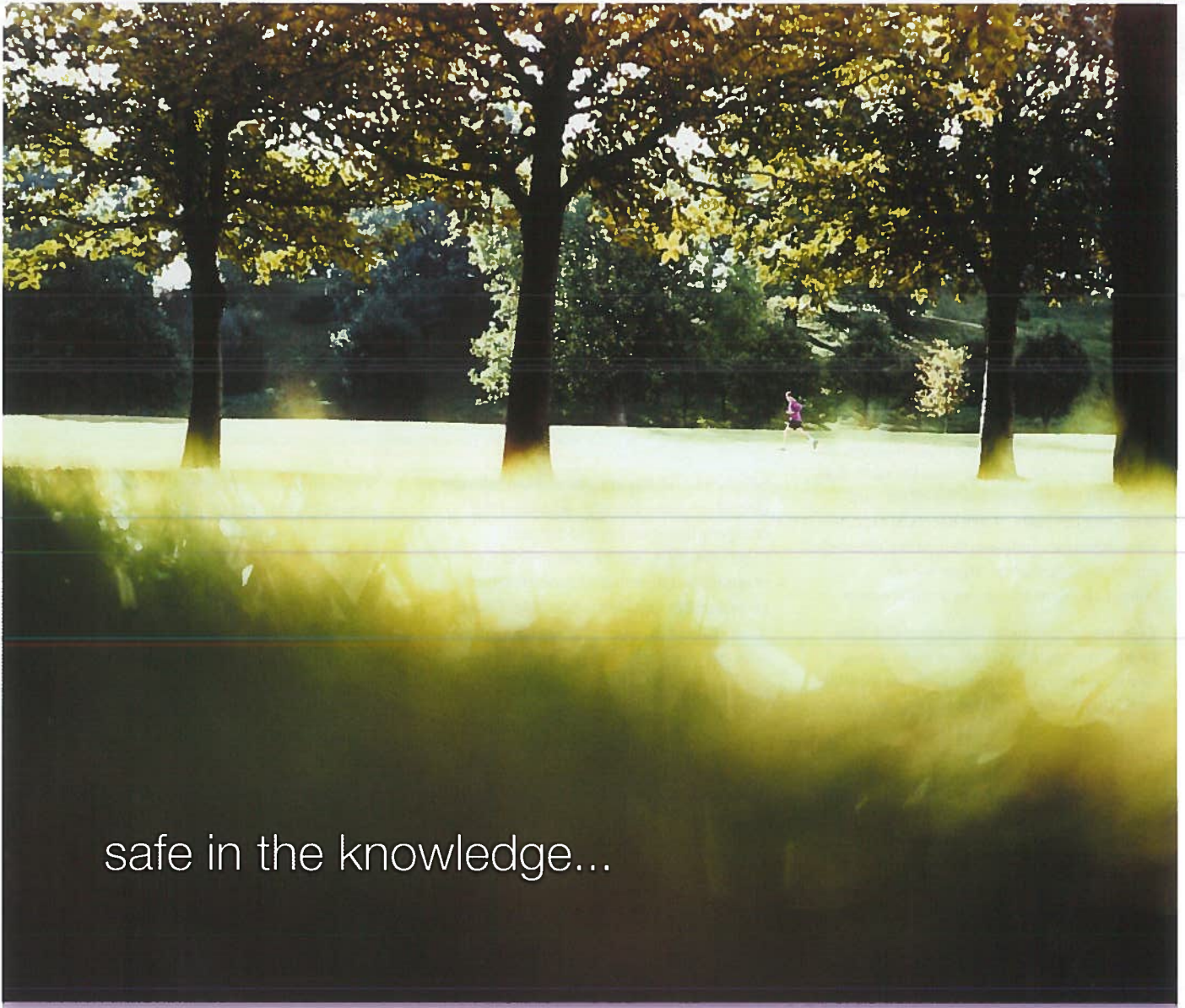
PLASA has produced a CD-ROM to provide information and promotional material to its members. The CD-ROM, which was mailed out to the membership before Christmas, contains a wide range of information on PLASA and its activities, as well as a specially-commissioned industry video and image library from the PLASA Show, which members can use for their own promotional purposes.



E-mail: jan@plasa.org

Election Results Announced

Following the elections for the Executive Committee at the end of last year, PLASA has welcomed two new members to its executive body - Tim Brown of Apple Sound and Tracey Patterson of Artistic Licence. Full details next issue . . .



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People News

Just as we were going to press came the surprise news from AC Lighting that **Nic Tolkien** is to retire immediately from the position of export sales director. Tolkien had been instrumental in developing the export market for AC Lighting since 1984 and managed the export sales office on a daily basis. Managing director David Leggett told L&S: "Nic is our longest serving employee and has been with AC Lighting since the early days. We would like to thank him for all his hard work over the years." Cally Bacchus, export sales manager, continues to lead the day-to-day export sales operation. There are no immediate plans to appoint a replacement.

Experienced pro audio sales specialist, **Sue Webb**, has joined TOA (UK) as sales manager. She most recently occupied a similar position with Wharfedale Professional, and prior to that worked with both HHB and Harman, having started her audio career at Soundcraft. Sue will focus on TOA's huge roster of products at retail level.

Following the recent integration of the Zero 88 and iLight management teams, Zero 88 has promoted **Tim Burt** to Zero 88 brand manager. As a result of Graham Eales' recent move to head up the iLight Group, Burt has taken over the day-to-day running of the Zero 88 brand. With over 10 years' experience in the lighting industry and a pivotal member of the Zero 88 sales team over the last five years, Burt is ideally placed to take on the position.

Orbital Sound has expanded its board of directors. **Jane Finlay** has taken on the role of director of personnel, **Sebastian Frost** becomes creative director and **Dominic Rozendaal** is the company's new commercial director. According to Orbital MD Chris Headlam, the appointments allow the company to address its next evolutionary phase across the next decade.



From left to right, TOA's Sue Webb, Zero 88's Tim Burt and Sennheiser's Alan Johnson

Sennheiser UK has appointed **Alan Johnson** as director of sales. Johnson, who joins the company from Sony Broadcast and Professional UK, will be responsible for planning and directing all aspects within the sales department. Meanwhile, **Nigel Mann**, formerly field sales manager for the Pro Division, becomes national sales manager.

AV specialist Blitz Communications has appointed **Fraser McCaig** as sales manager at its new Birmingham branch. McCaig has 17 years' experience in the AV and video production industry, having spent eight years with Quadrant Video Systems in Birmingham.

Martin Professional president and CEO **Kristian Kolding** has taken over the position of international sales director - entertainment, previously under the leadership of **Pio Nahum**. Nahum will maintain his position as international marketing director, as well as his post as CEO of Martin Professional Italy. **Gorm Teichert**, who recently became international sales director - architectural, now assumes responsibility for product management in the architectural segment, whilst export sales manager **Anders Kryger** has taken over Martin's team of area sales managers.

Richard Martin Lighting has drafted in **Michael Stevens** as technical manager. Stevens leaves behind his former position as senior engineer at Martin Professional UK, where he'd spent the last seven years.

Shuttlesound has appointed **Virgil Lund** to its sales team. Having come from almost a decade in MI and pro audio retail with the Academy of Sound, Lund, who will be looking after the southern part of the country, joins the already well-established team of Andy Murray, David Howe and Sean Maxwell.

OPTI has recruited **Idunn Rodziewicz** to its sales team as regional sales manager. Rodziewicz has 17 years' experience in the retail and exhibition market with Marler Haley. She will concentrate on the OPTI Trilite side of the business, cementing links with clients across the retail and exhibition markets.

TMB has continued the expansion of its sales department with the addition of **Lisa Kerwath**, based at the company's offices in Burbank, California. She was formerly production manager at Design Lighting Group and prior to that spent two years at Light & Sound Design, where she worked as a production coordinator.

Audio rental company SSE Hire has appointed **Emma Barwell** and **Spencer Beard** to its board of directors. Barwell takes on the role of sales director, whilst Beard joins the Board as hire operations director.

Paul Wood has joined XL Video as a project manager. Wood was previously the projects and operations manager for the LED screen department of SPS, prior to which he enjoyed several years on the road as a freelance engineer and projectionist.

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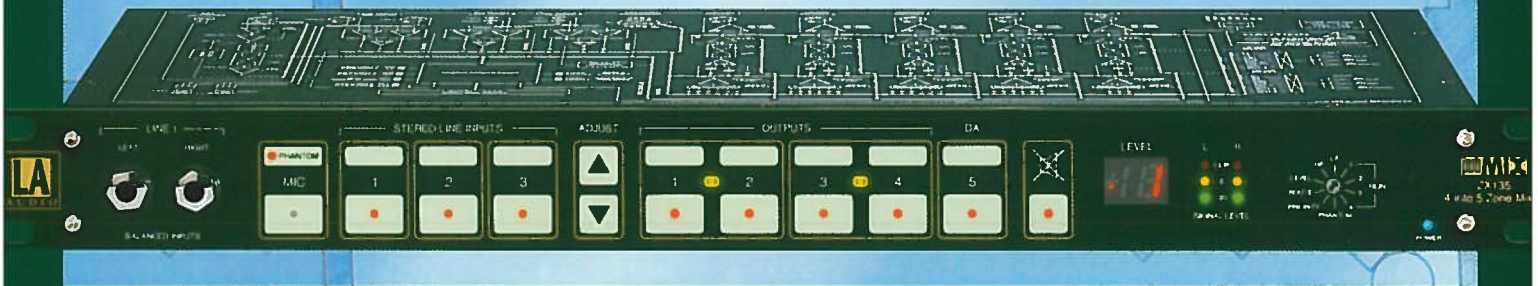
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- Paging unit option
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Paging Unit



The desktop paging unit allows priority paging to 6 zones or groups of zones. Two paging units may be operated on the system network. The back illuminated zone designation strip is sealed beneath a wipe clean surface.



British Originals

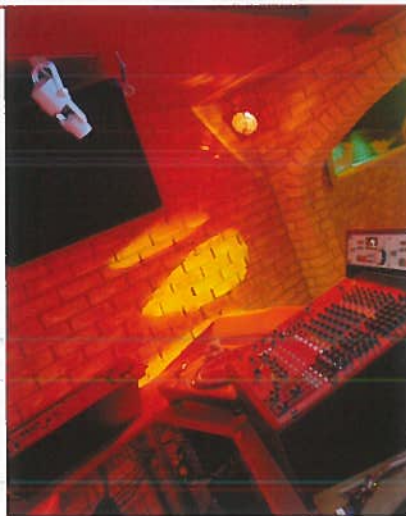
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Down, Down, Deeper & Down

Phase one of a major new club sound and lighting installation at the Cellar Club at Reynolds nightclub in Stafford, West Midlands, has been completed. The intimate 150-capacity space has vaulted ceilings, with arched passages snaking below ground level. Above are two additional floors which are currently being developed and which will soon to become an integral part of what will be a much larger venue.

CP Sound were called in to manage the installation. The loudspeaker system is entirely JBL, supplied by JBL's UK distributor Arbiter Pro Audio. The Cellar's dancefloor area features four JBL MS112 top speakers and two MS125S subs. The bar is serviced with four of the new JBL Control 29s, with Control 24 speakers also in the toilets. For the DJ booth, CP Sound supplied Technics SL1210 turntables and an Allen & Heath Xone:464 mixer, complete with a Denon DN-1800



twin-CD player. Distribution is by a Cloud CX133 zone mixer with a remote control for operation from the bar area when desired. Amplifiers are all RSE.

For the lighting, CP chose Pulsar's new Chroma range to highlight the architectural elements in

the bar. The arches of the room are down-lit with ChromaHearts, chosen for their multi-colour effects and impressive 25,000 hour lamp life. Arches inset into the wall run along the length of the space on one side, naturally splitting the room into sections. The central columns of these sections are lit from four sides with ChromaDomes illuminating the brickwork. These have ChromaFilters fitted to them to produce a wide beam effect and are controlled by two ChromaZone control boxes.

The dance floor is lit with one of CP Sound's club moving light systems, including eight MAD QScans and seven MAD QStars. An Anytronics strobe adds plenty of welly for those burn-out moments, and a JEM Magnum 2000 smoke machine pumps up the fog factor when required. A MAD1 controller located in the DJ booth looks after the dancefloor lighting. The dancefloor fixtures are divided up between five ceiling areas, delineated by the arches, with the QStars rigged to form two central cluster features. The neon elements were supplied to CP Sound by Simply Neon - instigated by designer Steve Howie.

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rosco at the science museum

A theatre of Science, a building that creates a condition, a state of mind, a borderless space where science continuously develops, where exhibitions continuously change, the Science Museum is a place where architecture and light truly form one. The very narrow wavelength of blue light distracts the human eye and together with large scrim panels creates a feeling of infinity. Orange accents create dramatic contrasts with the blue. A curtain wall

consisting of louvres and coloured glass get the sun into the building. On either side of the main space, behind the concrete wall, cascading stairs connect the different floors to each other. The blue concept is continued in a different way, having Rosco Ultramarine Blue Supersaturated Paint on the walls and white pools of light on the passerelles and stairs.

ARCHITECT: RICHARD MACCORMAC

PHOTOGRAPHS: ROOS ALDERSHOFF



Rogier van der Heide is an architectural lighting designer, founder and principal of Hollands Licht Advanced Lighting Design, an international lighting design company based in Amsterdam.



Current projects include the World Horticultural Expo Floriade (Netherlands), The National Museum for Natural History (Netherlands), The Tate Modern (UK, with Richard MacCormac) and Abu Dhabi 3rd. Bridge Crossing (United Arab Emirates).

Rogier teaches architectural lighting design at the Amsterdam School of Arts and he is a visiting teacher at several other institutes. In 1999 Lighting Dimensions awarded him Designer of the Year. This year, Rogier received an Edison Award of Excellence for the Science Museum's lighting design.



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DAR Restructures With AMEK

Harman International Industries has announced a restructuring programme for Digital Audio Research (DAR), involving a relocation of the business to the new AMEK Manchester location.

The DAR products will benefit from AMEK's state-of-the-art manufacturing facilities, ensuring product consistency and reliability.

John Carpanini of Harman told L&S: "DAR and AMEK have many common distributors worldwide and all sales and marketing activity will be consolidated under head of sales, Craig Lovell. Craig has been closely involved with

both brands over a number of years, and combining the sales activities under his control also makes excellent commercial sense.

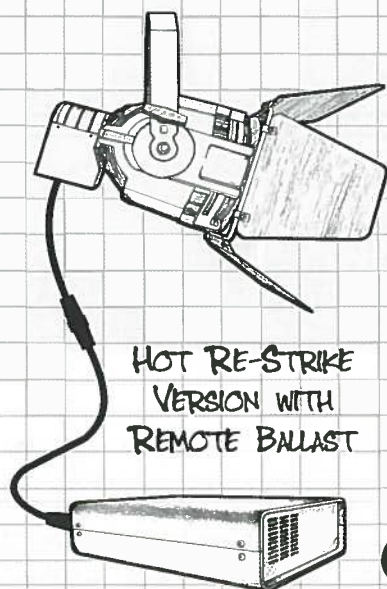
"The decision to relocate DAR reinforces our commitment to the recently-launched Trigger Audio Replay System, for which we have high hopes in the market. At InterBee in November, where it was officially launched, Trigger attracted considerable interest and sales are already looking encouraging. We also have a strong user base for the DAR STORM and OMR8 networked audio workstations worldwide."



The AMEK factory in Manchester

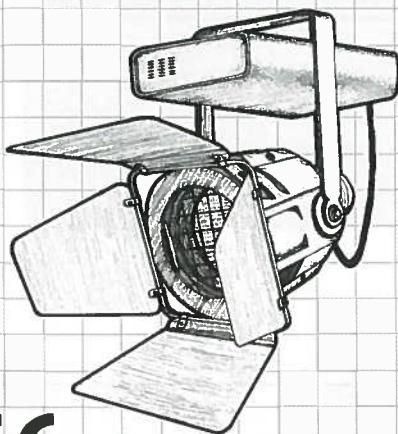
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Martin Enters into JV in Japan

Martin Professional A/S has entered into an agreement with Chako and Hiroshi Yoshida, long-time distributors of automated lighting in Japan, to establish a joint company, Martin Professional Japan Ltd.

The new company, located in Tokyo and consisting of eight employees, will handle the distribution and service of Martin, Jem and Mach products throughout the country. According to the company, the establishment of a single professional distributor in Japan, previously covered through three separate companies, is an important step in its goal of increasing focus on the Asian market. Martin's president and CEO Kristian Kolding has assumed the position of chairman of the new company. Other board members include Mr. and Mrs. Yoshida and Martin's area sales manager Jonas Eisenhardt. The official opening of the new company is expected in February.

▶ Tel: +45 87 40 00 00

Promanent Automation

Lawrence Heron, until recently a motor control specialist with Out Board Electronics, has established his own company - Promanent Automation (International). The company, which will have offices in both the UK and South Africa, will act as consultant for, and supplier of, automation to the entertainment industry. Heron has recently completed his first project for Tell Tale Productions - the automation of a Christmas tree for the Tweenies Christmas show - and has a number of other projects in the pipeline.

▶ E-mail: lawrence@promanentai.com

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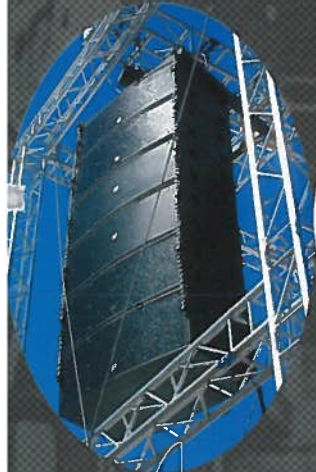
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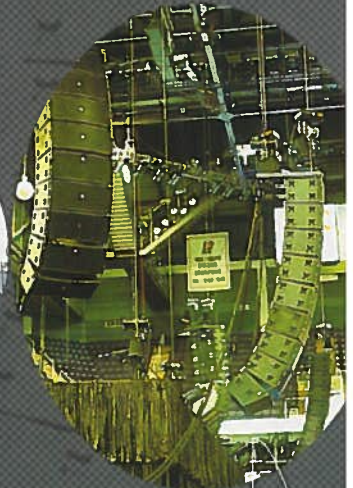
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Martin Cinema Systems in New West 12 Centre

Warner Village Cinemas have extended their relationship with Martin Audio cinema systems with the opening of the 12-screen West 12 Centre multiplex at Shepherds Bush. Forming part of the £20million redevelopment of the Concord Shopping Centre, the building of the latest Warner Village Cinemas site is part of a general renovation of the area, with design by architects The Colman Partnership.

The sound systems consist of Martin Audio Screen Series cabinets, which also featured recently in a number of screening rooms at the high-profile Warner Village Cinema complex at Star City, Birmingham, and in the Warner Bros' preview theatres in London. Warner Bros International Theatres' director of projection and technical equipment, Phil Crawley, confirmed that Martin Screen 4s and 5s are currently being adopted in new Warner Village Cinema multiplexes around the UK. Screen 5s and Screen Sub 1As are set conventionally as L/C/R systems in the two large Dolby Digital EX cinemas (Screens 9 and 12, with 386 and 284 seats respectively). The added cinema surround is provided by Martin Audio Effect 5s. Dolby Digital 5.1 features in the other screening rooms, where Martin Audio Screen 4s are in use.

The three-way Screen 4 and Screen 5 full-range systems boast dedicated mid-range and high frequency sections, with the Screen 5 designed for larger-scale cinema environments. This system, which has been designed to meet the THX specification for 3-way screen systems, consists of a 2 x 15" low frequency section, plus a unique mid-range and high frequency horn which exhibits ideal pattern control across its operating range from 300Hz-20kHz.

Cadac's Round of Sound Seminars

Cadac Electronics has extended its successful series of technical seminars, announcing a new programme for 2002. Kicking off on 23 January at Cadac's UK premises in Luton, the 2002 schedule is focusing on Quality Engineering for Live Sound Applications - combining practical presentations on balancing and shielding, EMC, gain structure, as well as comparisons between digital and analogue console design approaches.

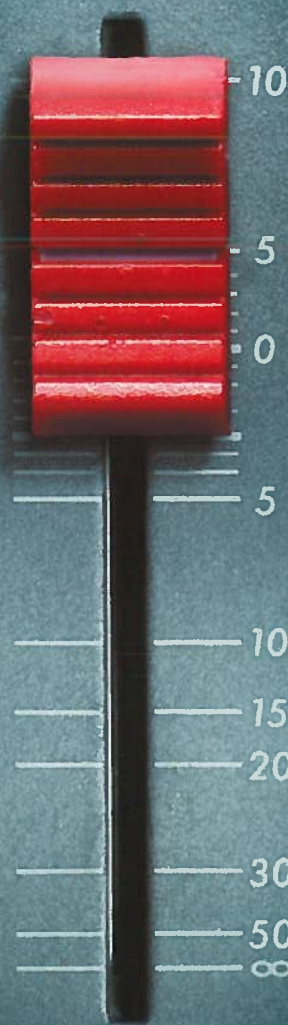
The seminars are led by sound and console design expert Tony Waldron, formerly head of sound at London's Royal National Theatre.

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Faithless Live . . . Steve Moles

This lot definitely break the convention: a dance band with a stage presence - and not before time. Faithless are almost a rock combo, a robust and rhythmical form of Steve Hillage, morphing and vibing, rather than worrying about melody and structure. It sounds great, though personally it's not my cup of tea.



Sequencing apart, this is a very analogue sounding band, real guitars, keys, drums and percussion, yet on the outside their show embraces some of the very latest technology.

Lighting

These are never easy shows to light, the style demanding that you not so much light the artist, as the room. Juan Morandi has strong things to say about the subject: "The fact is you can't tour a music production at this level with anything original unless you have a lot of money. This is a front and back truss situation with extremely boring moving lights." Sorry? "Who's not seen a rotating gobo?" Fair enough. "We go from 80ft to 20ft wide stages, and you have little choice but to compromise."

That said he makes much of his lights from LSD Fourth Phase: Cyberlights and PC Beams distributed at every height and vantage point make for a full canvas, which is busy enough to always engage the eye. But Morandi has a stranger in his rig - a pair of Barco ELMs fitted with High End Catalyst control platforms developed by Wynne Willson Gottelier (WWG). Barely months out of launch mode, Morandi has a beta version: "I

came across Richard Bleasdale in an Internet chat room some time ago when I was looking for information on video and software." Bleasdale, for those who don't know, is the software genius who developed SAM Show Control (as used for the Millennium Dome show) and the third element to WWG's brainchild. And while we're on the subject of antecedents, Morandi is an LD who divides his time between concert tours, theatre and opera, most recently lighting *Don Pasquale* for Jonathan Miller.

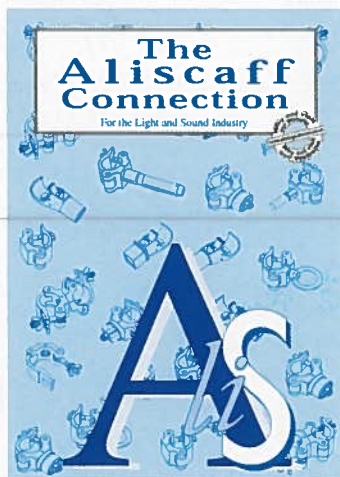
"I have a black projection screen across the back which works really well for the B&W images, real blacks and very high contrast. The Catalyst is for adjustments - shape, size, mask - things that normally can take a lot of time." Besides understating the image manipulation,

Morandi is at pains to point out he does all this himself: "That's one of the beauties of the system - I don't need a video man and a PPU and all the extra expense that entails. I've loaded After FX and Photoshop onto the G4 system and because all the images and applications live together, it's easy to flip in and out when programming."

He controls both the lighting and all the Catalyst cues from a solitary Wholehog II, DMX running to a Hog Widget which translates to USB and thence to the Mac G4: "It's almost instantaneous, maybe less than a tenth of a second delay, so effectively it's another light I control. There are limitations - if you want to do something like a zoom in/out as part of a fast chase, you end up bouncing up against the speed of the processor. The trick is not to load too much onto one cue and to build a stack of preparatory cues. It's essentially movie playback; if you don't know about movies, how to edit for example, you'll find it a bit difficult. It's great for experimental work - but it's only as good as what you put into it." A telling endorsement, the very fact that you can input your own imagery at all, and indeed manipulate that imagery in the Catalyst system, seems to me to set it apart. Maybe that explains Morandi's rather jaundiced comments about moving lights.

Sound

Mark Kennedy mixes without the aid of a safety net, dangling from a Midas Heritage 3000 beneath a rather large Nexo Alpha from SSE Hire. "I've got 46 inputs, eight sequencing, all recorded years ago and all completely different;



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even the bass drum sounds vary enormously." He has gates on the toms and kick, and Neve 9098s for backing vocals and the bass. "I use as little as possible: unless it sounds considerably better through a compressor, I always prefer straight signal."

It's a complex mix, stacked with awkward cues, like a held chord on a keyboard that builds throughout the song: "I've spent five years with Rollo [his band effectively] discussing the relative balance of the recordings." Which is weird in a way, Faithless appear more freestyle - a jazz band if you like - than a nailed-down studio sound. Still, it worked, inasmuch as the punters loved it, plenty of energy and lots of detail.

Monitors are where digital hits us again. Tim Paterson, although only having been with the band since September, has persuaded them to let him try an Innovason desk. "In many ways it's brilliant for this application," he says, showing me a fist-full of cue cards that he used in the beginning with an analogue desk. "It was a nightmare. Between songs, there could be 10 operations on the downside and a dozen on the up, before I even got chance to check with the band to see if there was anything they needed."

Apart from using XTA SiDDs for compression and limiting on the Sennheiser in-ear systems, Paterson uses only the desk's on-board gates, compression and EQ, finding the concept of a



fader-only desk - accessing a single dynamics and EQ panel by channel selection - good for reasons beyond automating all those change cues. "It is different to get your head round, but once you get over not looking at everything at once,

something that took me about four shows to master, it's great. The sonic quality for wedges is fantastic, for in-ears not bad; the trouble is input gain, currently it's in 3dB increments, but I understand Innovason will soon change this to 0.5dB." As for the oft cited 'headroom' fear. "Not a problem. Whereas on a Midas you run to a theoretical 0dB, here you run at -18dB. If you do get a massive leap then yes, it does start to digitize, but so long as you see that coming, it's easy to put compression on it."

Paterson also likes the ease with which he can have stuff prepared which allows him to make quite radical changes on the fly, "like completely changing EQ on the side-fills song to song - it's a



Main picture, Faithless at the Manchester Apollo. Inset, FOH engineer Mark Kennedy and monitor engineer Tim Patterson.

one-button operation." Transport is another plus. "The board only weighs 60kgs, another 20kg for the processor rack, and all very small."

He's not quite planning on taking it as carry-on luggage, but the board will visit the Pacific Rim in the New Year with little impact on freight costs. "There are downsides. If you want to use any external stuff it is difficult." Not that this deterred him from using the XTA SiDDs. "It takes time and care. It's not perfect, but what desk is? I'd like to see other manufacturers letting Innovason licence their digital compressor, for instance, into the board - but we'll get there."

Despite the Sennheiser in-ear monitoring systems, Paterson has a very loud stage to deal with. The BVs and one aurally-damaged band member use wedges, the latter obviously very loud, and the side-fills are an essential source for the musicians and thus affect the whole show. His mix is easily as busy as Kennedy's, but all appeared comfort and bliss on stage.

Tricks of the Trade:

Patterson uses a chest-worn lavalier microphone on his percussionists, a trick he learned working for Herbie Hancock: "It's perfect for those percussion toys: instead of the musician having to lean to a static mic, they can play more naturally, move around and hold it to their chest."

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Hard Rock Unveils Bar Concept

Hard Rock Café International has developed a new bar concept, which has been piloted in Birmingham's burgeoning Broad Street.

To realise the new bar, architects and interior designers Lewis & Hickey worked alongside atmosphere and technology designers PA Installations (sound, vision, lighting control) and LDPI (lighting fixtures).

PAI had a difficult, reverberant environment to work with. To address this they chose a system based around US-manufactured Klipsch speakers and a BSS 9088 Soundweb DSP. According to project

manager Martin Draisey, while the choice of loudspeakers for Birmingham was laid down from Hard Rock headquarters, the general specification was the responsibility of the local contractor. The venue was divided into 10 zones under the command of a Crestron CNMSX processor and LC3000 touch controller, responsible for local volume level and source selection specific to each zone. Stored in the

Bar Concept

Soundwebs are time alignment settings, EQ and crossover parameters. The Crestron touch controller also controls all the video matrices manually, with a video switcher between DVD, S-VHS and MPEGs, programmed in America and decoded via the Cisco computer system. Screen destinations are a mixture of 42" plasma screens and LCD monitors. The lighting rig, the framework for which is a LiteStructures truss system, features Abstract VR8Rs, ETC Source Fours and Par 36s amongst its line-up, controlled by an i-Light control system.

The new concept will now roll out on sites in Leeds, Nottingham and Cardiff over the coming year.

New Conference Technology

Brähler ICS (UK) has supplied the North-West Leicestershire District Council with a clutch of tailor-made systems. As part of an overall refurbishment, the Council Chamber is now equipped with a new microphone management system (Digimic) and an extra facility for audio-distribution for the hard-of-hearing (Infracom).

The installation consisted of 50 Digimic flush-mounted units, two Infracom radiator panels, and 10 daylight receivers with neck loops. Standard headsets were also included for the hard-of-hearing. The latter is an infra-red system based on Brähler's recently introduced MSI-2 transmitter and comes with daylight receivers which are immune to interference from direct sunlight.

The whole installation, which included a PA system for the press and public areas, was carried out by a local contractor and fully supported by Brähler.

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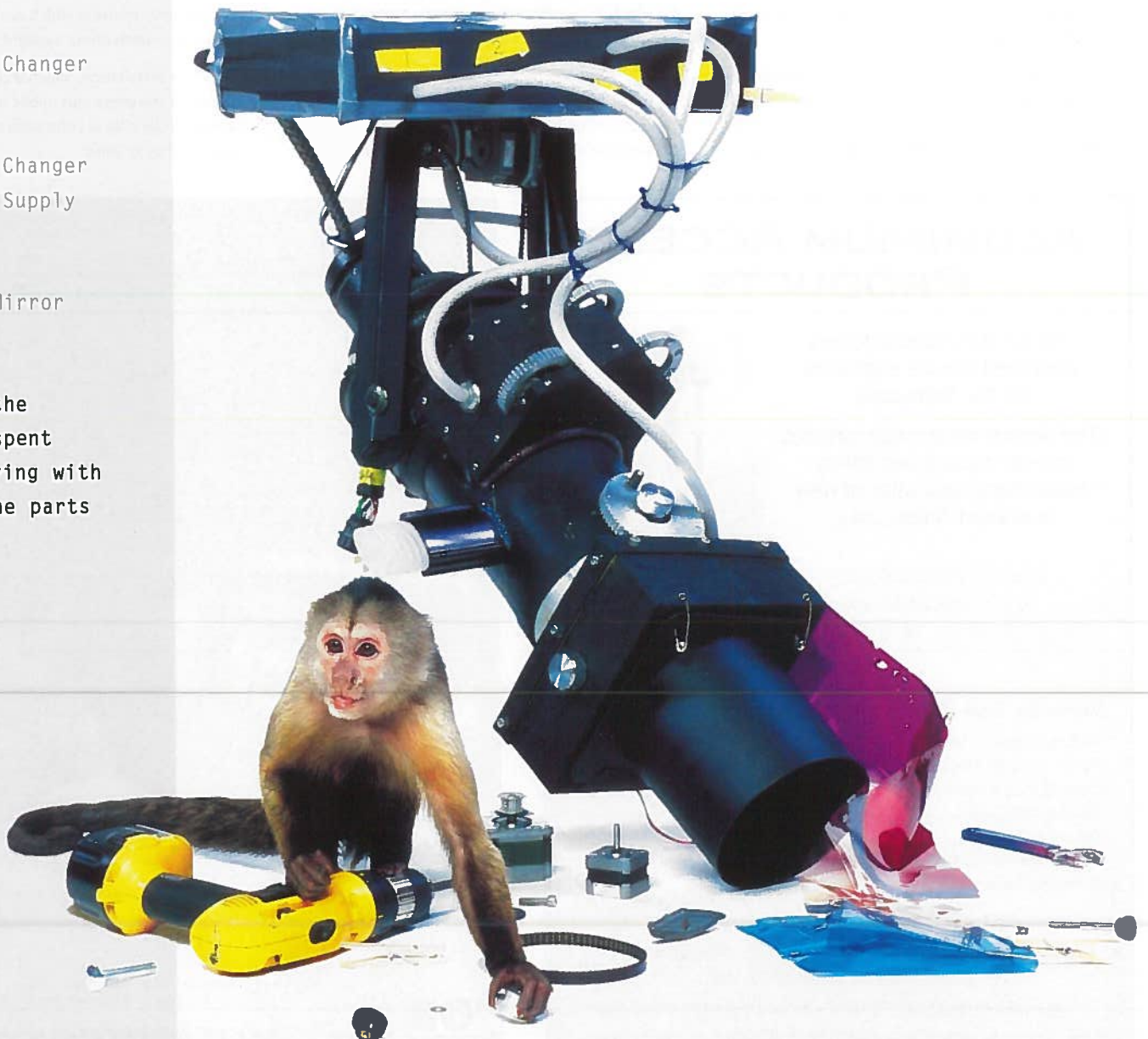
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Rock Muse-ic . . .

Devon-based rock trio Muse appeared at a wide variety of UK and European venues at the tail end of 2001; Mike Mann saw them in the cavernous London Docklands Arena.

Lighting designer Oli Metcalf has seen his system squeezed into small clubs and stretched to fill a full arena stage - and has managed to keep the CAV-supplied rig intact along the way. Metcalf is using CAV for the first time, a decision, prompted by their stock of up-to-date High End product. "I'm using 16 Studio Color washlights and the same number of Studio Spot CMYs," he revealed. There are also 14 AF1000 strobes in his design and a quartet of modified Cyberlight Turbos - their rear cable entries have been removed to allow them to stand vertically under four fabric cones which form an important part of the set. "CAV seemed to have all the new High End kit I needed, and they had no problem with me wanting to work with my usual crew," said Metcalf, who also brought in Total Fabrications to build top plates for his truss towers, allowing moving lights to be attached to a standard length of well-secured barrel.

To drive the Pars, ACLs and Source Four profiles, Metcalf specified 72 channels of Avolites ART 4000 dimmers. "They have an amazing DMX response time," he said, adding that his console of choice was the Avo Sapphire 2000. "It's a very busy show - it's all about timing - so a quick response is really important." Metcalf's system shared projection



screens with a fast-moving video design, necessitating accurate focusing and luminance control throughout the band's varied set. Video itself was provided by Excel, directed by Gerard Corry - who was under strict

instructions to keep cameras out of the band's way. "The band didn't want huge cameras around the stage - and to be honest, they move about so much that handhelds wouldn't have been much use," he explained. Instead, Corry opted almost entirely for Toshiba and Panasonic mini-cams. "With these, we can get where other camera's can't reach!" he laughed, highlighting mini-cam mounts on lead singer Matt Bellamy's mic stand, the neck of his guitar and the edge of the lead keyboard. "Everything is done in close-up," he added, "and it gives the show a great bootleg kind of feeling."

The rest of the video system contained a custom configuration of Excel gear to handle the higher camera count. A Panasonic MX50 console, Magic DaVE formed the heart of the PPU, with Barco 6400 projectors illuminating a pair of side-screens.

The Muse brand of heavy rock gave Yan Stile of audio supplier Canegreen a chance to put his shiny new EAW rig to the test. The breadth of

Main picture, lead singer Matt Bellamy

Inset, Lighting designer Oli Metcalf with the Avolites Sapphire 2000

musical styles during a typical set means that the heavy metal approach will never work with this outfit. A pair of KF-760 and KF-761 line arrays, underpinned with two blocks of 20 SB-1000 subs, were used to fill the floor of the London Arena, the largest venue of the tour. Production manager Chris Taplin had specified drapes over the unused bleacher seating in the arena to help reduce the venue's tendency to reduce every number to unintelligible clanging.

A bigger improvement, however, was created by the accurate rigging of the EAW system. Having constructed the trademark 'I' hang (in fact a near-parabolic curve that allows the wider-dispersion KF-761s to integrate with the KF-760s used for the far field), Canegreen's Paul McCauley and FOH babysitter Rej Jane managed to concentrate a chest-thumping amount of power onto the floor without undue spill above head level. With a packed arena floor, enough absorption was present to give an intimate feel to the band's sound, despite the huge distances involved.

In Europe, the show (and the PA system) had to be shoehorned into smaller venues, dictating a flexible approach to system engineering, involving, for the Paris show, the use of ratchet straps and the proprietary EAW frames, which permit 'solid' angles to be created between boxes. FOH engineer Marc Carolan: "You can take this anywhere - and it's perfect for Muse. It works the way I want to work." Carolan's system includes a Midas XL4 (almost entirely filled with inputs from the stage), BSS DPR 901 dynamic equalizer and DBX160S on lead vocals, and a DCL200 'warmly compressing' the main guitar and bass channels. The rest of the rack (DBX, BSS and Drawmer processors, Lexicon and Yamaha effects) is fully MIDI'd up; Carolan programmes a couple of states per song to cater for the wide dynamic range of the sources.

Monitoring is not the metal-head's Ideal of 10 wedges for every band member. Instead, Shure PSM 700 series IEMs are used for vocals and drums, with just a touch of side-fill. The band's bassist does use a conventional cone-based system - and of course has his own bass rig turned up to 11. Another XL4 was specified by monitor engineer Adam Taylor, with KT graphics across his outputs and external (rather than internal) compression applied to the IEMs. Taylor was unequivocal in his praise for Canegreen's system and crew. "They're a great bunch of people. They've got eight other big tours out at the moment, but they still got it together really well for us." If you're reading this, Adam, Yan says the cheque's in the post.

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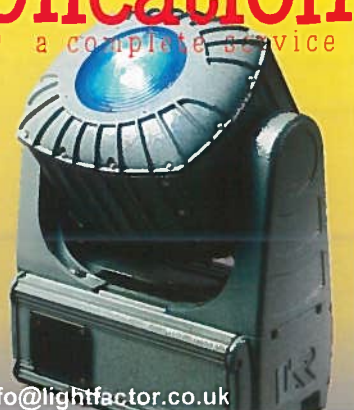
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Middle Earth Comes to Tobacco Dock

The Event Lighting & Design Company added yet another high profile job to its portfolio recently by designing the lighting for one of the most talked about events of the year - the Lord of the Rings premiere party at Tobacco Dock.



The spectacular party aimed to recreate scenes from the film and bring Middle Earth to the Docklands - not an easy task!

EL&D worked closely with the film's production designers (who have already won an American Movie Review Award for their work) to recreate the lighting effects seen on screen. Each area in the party had a distinct atmosphere reflecting

particular scenes in the film. Lothlorien, home of the elves, reflected the beautiful wooded landscape. Also recreated was the Prancing Pony, a warm, welcoming Pub with custom-made hanging silk flames.

The Village Green was lit to show outdoor twilight where hanging lanterns were customised to mimic the Hobbit ones in the film. The sinister atmosphere of Mordor was portrayed through

deep red lighting with a combination of Par cans, Miniscans and MAC 600s to illustrate the evil of the Dark Riders.

Around 3,000 guests attended and EL&D spent a week installing the effects, lighting 25 different areas. They also faced the challenge of supplying power to a 100,000sq.ft building.

Letters

Dear Editor

Re: PLASA Show Coverage

In the otherwise excellent description of Catalyst, as launched at the PLASA Show, the product is described as 'badged by High End Systems'. This considerably understates the role of High End in the development of the Catalyst system: while the product was conceived and developed by Wynne Willson Gottelier (WWG) in the UK, the development funding was provided by High End and was guided throughout by their R&D VP, Mike Wood. Their participation was particularly significant in the costly and intensive business of software creation.

Subsequently, WWG has licensed the product to High End to enable them to manufacture Catalyst themselves and to market it as their own product. I thank you for the opportunity to set the record straight.

Tony Gottelier

Wynne Willson Gottelier

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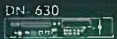
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RFH Transformation



The Royal Festival Hall production team gave blood, sweat and tears to stage the 2001 festive ballet season, featuring the renowned Moscow Stanislavsky Ballet.

The team, led by head of production Nigel March, and in collaboration with the venue's riggers Vertigo Rigging, transformed the concert hall into a proscenium arch theatre, with all the expected rigging and flying facilities, ready to stage *The Snow Maiden* and *Swan Lake*.



This was the most ambitious set and lighting design ever staged at the South Bank, as well as one of the tightest timeframes. The initial task of the Vertigo team, headed by Paddy Burnside, was to install an 18 x 12 metre mother grid in the roof of the Hall. Below this was hung a trussing sub-grid to hold all the lighting and scenery bars and tab tracks. Because the changeover between shows was so tight, scenery and cloths for both had to be rigged at the outset - leaving just 40mm between each bar!

Vertigo also built a fly gallery off to stage right, and two over-stage followspot positions. The orchestra pit was created by adding an 8ft thrust to the front of stage and removing six rows of seats. This created a space just large enough to accommodate the 36-piece Stanislavsky orchestra. To enable a 40ft x 40ft dance platform to be installed for the performers, at a stage height of 7ft, the hall's upstage choir stalls were removed. The pros arch was constructed from trussing and clad with flats and drapes. Lighting design (by Ildar Bederdimov for *The Snow Maiden* and Anatoli Remizov for *Swan Lake*, operated by James Tapping) uses much of the RFH's in-house stock, the vast majority of the 750 lanterns being ETC Source Fours, along with Strand Coda cyc lights. The show is run from one of the RFH's Strand 530 consoles with dimming from Avo.

Ballet is normally free of amplification, but because of the idiosyncratic acoustic conditions created by the existence of the pros arch, an EAW foldback system was installed onstage for the dancers. The whole schedule was compounded by the fact that up to two days before the Ballet's three-week residency started, the Hall was presenting its own series of one-night events! This meant that as soon as the ballet fit-up had commenced and the mother grid was in, as the night shift finished work each morning, they also had to hang and focus a temporary lighting rig - for that evening's performance.

"It's been an enormous challenge," said Nigel March. "It's brought together a lot of creative and lateral technical thinking, huge determination and dedication from all the technical crew. I've also pulled in favours from many sections of the industry to help make it happen under very difficult circumstances! The teamwork has been terrific, and I'm really proud of what we've achieved."

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AND KEEP A LOW PROFILE.



Philips CSI Moves to New UK HQ at Heathrow



Philips CSI has moved to an impressive new corporate facility at Heathrow, a move which will allow it to expand its service and support operations.

Philips CSI's new building is located on the Bath Road adjacent to Heathrow airport. The facilities at the new site will allow the company to expand its operations, especially with enhanced sales, training and demonstration facilities for customers and installers. Reg Nicholls, the newly appointed UK general manager for Philips CSI, told L&S: "Our move into this building allows us to continue to strengthen and develop our UK operations. We have opportunities to further promote the Philips brand name by providing all the services required to make us more customer-focused and responsive."

The new Philips CSI centre at Heathrow will also offer a much faster response and turnaround on both warranty and non-warranty repairs, plus a new 'swap-out' service on key products that effectively gives customers a free replacement product while their own equipment is being repaired. Following the success of its installer training programmes around the UK, Philips CSI is also expanding its in-house training at Heathrow. Separate from the training facilities will be a very much larger demonstration facility, allowing the company to demo its full range of CCTV, PA, Paging and Congress systems.

The new contact details are Philips CSI, 276 Bath Road, Hayes, Middlesex, UB3 5BX, UK.

 Tel: +44(0)20 8730 5300

Changes at Stage Electrics

Stage Electrics has launched a number of initiatives for 2002, the first being to make available its full range of hire stock from its London branch. The new branch was one of the success stories of last year and will be the subject of further expansion in the coming year.

2002 will also see the consolidation of the Stage Electrics group of companies into one brand to create a nationwide network of branches. Theatre Direct in Cambridge and Theatre Vision in Cardiff and Brecon, will become branches of Stage Electrics from 1 February this year and will benefit from extra support and access to a wider range of equipment and resources.

Scalable

Software is the lifeblood of a control product. The release of Version 3.00 goes further. Whether you choose the award-winning grandMA, the compact grandMA light, the small and powerful grandMA ultra-light or the versatile grandMA replay unit you are entering a common scalable operating environment. Any of these products can be networked together for backup or playback control via Ethernet. Finally you have the chance to get total control on every scale.



grandMA light Lighting Control Console

The grandMA light loses none of the functionality and power of the larger model, but offers a more compact solution for touring and small control spaces. It is completely compatible with the other consoles in the grandMA family and will accept and run shows programmed on any model.

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- 2048 DMX channels (expandable to 4096)
- total connectivity via multiple inputs, outputs and Ethernet
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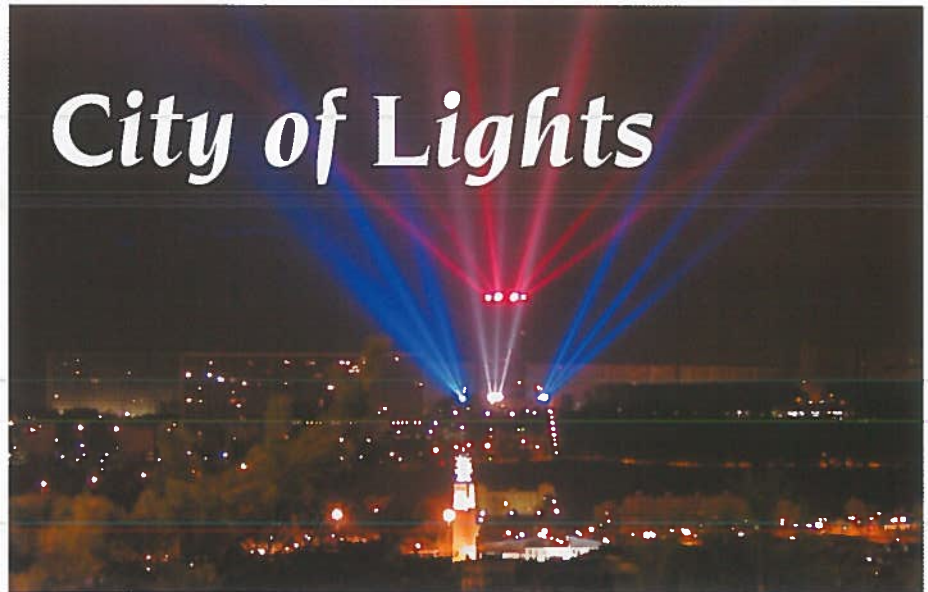
Lyon - City of Lights

In recent years a growing number of manufacturers have turned their research teams towards the development of large-scale lighting instruments - big lamps with some of the newer features of modern theatre lighting - in-built colour changing devices, moving yoke, etc.

Why? Well, either the manufacturers are trying to drive new markets having saturated theatre, TV, concert and corporate events with smaller, highly developed models, or alternatively the market researchers have been busy and discovered that there is, in fact, a latent demand out there for such lighting equipment. Personally, I tend to the second view, but there's no doubt that having once created a beast, chances are someone will find a use for it - witness the large xenon-powered searchlights that are commonplace at festivals and special events. But when we turn our attention to buildings, especially in the UK, we have little beyond the Lloyds Building in the City to inspire us.

Not so in Lyon, where a modern and inevitably Gallic approach to the illumination of buildings has been underway now for many years. Where else would you find the daring imagination to include not only the jewels of Lyon's architectural heritage, such as the magnificent gothic pile that is the Hotel de Ville - but also the austere concrete tragedies of the Duchère district? "It's the Toxteth of the city," one lighting designer commented. "It's a bleak and barren landscape dominated by a 30-storey tower. Other tower blocks dotted around are punctuated by 11 so-called Bars, essentially large concrete blocks that were supposed to add drama, but end up only emphasising the heavy grey atmosphere that pervades the site."

Well, yes, it sounds as though a little lighting might go a long way towards lifting the spirits of such an area. The fact that Lyon's City fathers are bold enough to be so 'inclusive' is laudable; look down any residential street in the UK over Christmas and you discover that the most extravagant displays of festive exterior lighting are often to be found in the most under-privileged areas.



Top, the Duchère district; centre, the Jacobins area and bottom the Théâtre des Célestins

Lyon's festival of light has its roots in a religious occasion: in 1862 the city survived a plague epidemic and a statue of the Virgin Mary was erected on the Chapelle de Fourvière in gratitude. In subsequent years, to mark the anniversary, people began to place lighted candles in windows throughout the city, a tradition that endures. The modern festival began in 1989 and reached widespread acclaim nine years later when in 1998, the city was granted World Heritage status by UNESCO.

As a lighting event the festival runs from the 6th to the 9th December, the 8th being the traditional day for the passing of the plague, but its impact goes well beyond those few days.

Since 1985 the city has been steadily adding light to the environment in ways that support and enhance it in a permanent fashion. Since 1990 a 50-million Franc investment has been committed to a five-year plan that has given birth to spectacular treatments of such sites as the Musée des Beaux-Arts (a 17th Century Abbey), the Opera house, and the Pont de l'Université, to name just three of 267 sites that now sport a fixed installation. Though the figures might sound intimidating, the city claims the cost to the inhabitants runs to just 5 Francs per annum, though it's important to recognize the support this project has, and continues to receive, from EDF (the local power company), Philips, and many other large employers in the region.

How the festival gives stimulus to the permanent installations is interesting, this year's treatment of the Duchère district being a prime example. "My partner's sister saw an advert in a National broadsheet newspaper back in July," explained lighting designer Andy Doig. "The Societé des Eclairagistes [basically the Interface between designers and the City] were looking for submissions; I contacted them, laid out my credentials, and was then asked to present a concept for lighting a specific location. In this instance Duchère." All sounds so simple really?

Contacting Dominique Bonvallet at the Societé revealed a more embracing remit. "The festival has many facets: this year there will be a presentation by the Association of Lumino Therapy, for example, covering the use of lighting as a therapeutic tool. But the core is political, the resetting of the city through an urbaniste lighting plan." As such, Doig came up with an all-embracing idea.



LD Andy Doig came up with the idea of distributing 300 disposable cameras to interested residents and projecting the images taken onto one end of each tower block

"I didn't want what I did to be imposed upon the residents who live in Duchère, so I came up with the idea of distributing 300 disposable cameras to interested residents and asking them to shoot anything related to their environment. With the help of Guillaume Atger, a photographer from the local newspaper, a selection was made from their efforts. My plan was then to have five small trucks, each with a generator and Pani BP4 on the back, drive in at 5pm and project these images onto the pignon's huge blank concrete walls that form one end of each tower block."

The trucks proved essential. "This is a 'Hot Quartier', a bit of a rough neighbourhood," explained Doig. "The trucks were intentionally mobile so the equipment could be removed around 10pm, when most residents went to bed. One did have to make a rapid early departure one night when a full tin of paint was hurled at it from a roof top." Doig pointed out that this was the inevitable tiny minority always out to spoil the fun: "In fact, we received many, many positive comments from residents about how much they liked what was being done."

As part of the show, six 3kW Syncrolites were installed atop the central tower, with a dozen Skylights around the base, both items proving just too big and heavy to be stolen. "The idea was to contrast with the rather nasty sodium lighting. This large-scale lighting was in two stages, lighting the tower itself until 10 with a changing colour pattern about every 10 minutes; and then moving off into spatial effects thereafter that gave minimum disturbance to residents."

Despite that singular incident, Doig's lighting was deemed a success, "We've received some kind of gong for it," he volunteered absent-mindedly. "But certainly I'd go back and do it again. I can already see different techniques, better ways of doing things."

A better way of doing things is right, with so much available to us in the way of fantastic technologies, and with so many talented lighting designers here in the UK, it only requires the political will and perhaps a quick trip to Lyon, to spark a movement here. My nearest local city is host to the longest-span suspension bridge in the whole of Europe, yet beyond the baleful yellow glare of sodium street lights it remains unlit. Even a simple festoon along the main suspension wires would turn murk into magic.

Interesting fact: Andy Doig volunteered to visit a variety of other sites throughout the city to take photos on L&S's behalf. Downtown, outside the Hotel de Ville, he was mugged by a gang of three and his camera was stolen. Luckily his partner Bridgitte is a tough city girl - she rugby-tackled the thief and rescued Doig's camera.

Steve Moles

Photos: Andy Doig/Andre Perez

Value



Initial cost is always an issue, however the on-going cost of ownership and a knowledge that your investment is safe in the long term are also key. The grandMA lighting control system scores on both counts and offers outstanding value. The hardware design supports all current and proposed lighting control standards and the advanced networking architecture offers almost limitless upgrade potential.

grandMA ultra-light Lighting Control Console

The grandMA ultra-light is the most compact member of the grandMA family yet still retains full compatibility with show-files from all consoles in the range. It offers all of the functionality of the powerful grandMA software but at a price that suits even the tightest budget.

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- extended command line control
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- 1024 DMX channels
- total connectivity via multiple inputs, outputs and Ethernet
- hard-disk
- integrated networking with all grandMA products

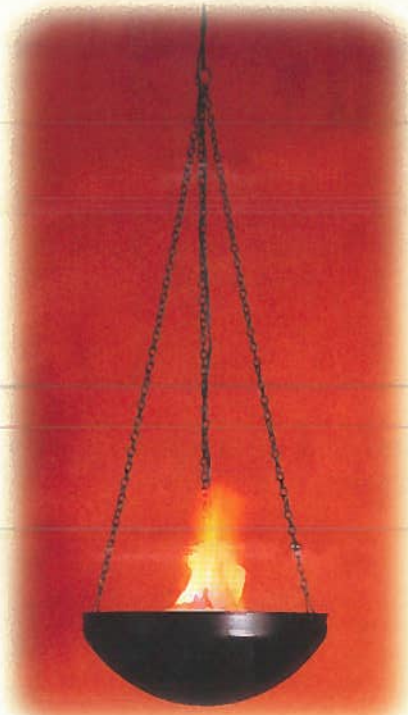


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Phoenix Sound Makes its Debut at Wembley



The Wembley studio building that used to house CTS Studios is back in business as a recording facility after industry veteran Pete Fielder secured a lease on the premises, which he has re-opened under the name of Phoenix Sound.

The studio building is located close to Wembley Stadium and was due to be redeveloped as part of the overall stadium rebuild. However, when plans for a new stadium fell through, Fielder acquired the lease from Wembley plc with a view to securing the site's future as a recording studio.

Fielder, a respected engineer and APRS board member who has extensive experience of the studio industry, told L&S: "This is a large site that is already very popular with musicians and has plenty of potential as a studio complex. Although we are re-equipping from scratch, the actual studios and control rooms are already in place and will simply be re-decorated and acoustically treated. We have now opened Studio One and by the end of 2002, we aim to have the rest of the complex in use as a recording, rehearsal and post production facility."

Included in the equipment on Fielder's shopping list is an AMS Neve Capricorn, which will be installed in Studio Two once it has been remodelled by Recording Architecture. Fielder is hoping to transform Studio Three into a post-production room for ADR and Foley work, while the other 12 rooms could be let for smaller projects.

Phoenix Sound is already generating interest within the recording world. The BBC Concert Orchestra is currently using Studio One as a temporary home following the collapse of a ceiling at the Hippodrome, which left the orchestra without a base. Other clients include Rick Wakeman, who was the first to book Phoenix Sound. He recorded various tracks for a DVD and a forthcoming album project.

 Tel: +44 020 8900 0777

Vari-Lite Halts Virtuoso Sales

Vari-Lite Inc is discontinuing sales of the Virtuoso DX control system, though it will continue to rent the desks and provide customer support for desks already in the field. "This was a tough decision," said Rusty Brutsché, chairman and CEO at Vari-Lite. "But in the end, sales of the Virtuoso DX console just weren't profitable for Vari-Lite. And therefore the decision was made to concentrate all our manufacturing and sales efforts on the luminaire market, which has greater potential for profitable growth. The positive response to Vari-Lite's newest automated luminaire, the VL1000 ERS, combined with the success of the Series 2000 luminaires, reinforced our decision."

Support



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grandMA replay unit Lighting Controller

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News Round-Up



JR Clancy & Stage Technologies in Alliance



The collaboration between the US theatrical equipment consultant, JR Clancy, and UK manufacturer of stage automation systems, Stage Technologies, has moved on another step with the signing of a formal agreement between the two companies.

This agreement, which covers land-based stage engineering installations in North America, was signed at the LDI 2001 exhibition in Orlando earlier this month, and cements a relationship that has been strengthening over a number of years. The companies first worked together in 1995 providing a complete 95-axis power flying system for the Teatre Nacional in Barcelona, Spain. More recently, JR Clancy provided the Conference Center of The Church of Jesus Christ of the Latter Day Saints in Salt Lake City with an automated rigging system complete with a 45-axis Nomad control system.

Tom Young, vice-president of sales and marketing of JR Clancy, explained: "This agreement formalizes the working relationship we have had for many years, combining Stage Technologies' line of respected control products with Clancy's established motorized rigging equipment."

Sales and marketing director for the company John Hastie added: "Our work to date with JR Clancy has included most recently a 12-axis Juggler console system in the Center for Performing Arts at Rhinebeck, New York, as well as numerous recent installations on board major cruise ship venues."

Our photo, taken at LDI in Orlando, shows Nikki Scott and John Hastie of Stage Technologies with JR Clancy's Tom Young (right).

SigNET Wins Export Award

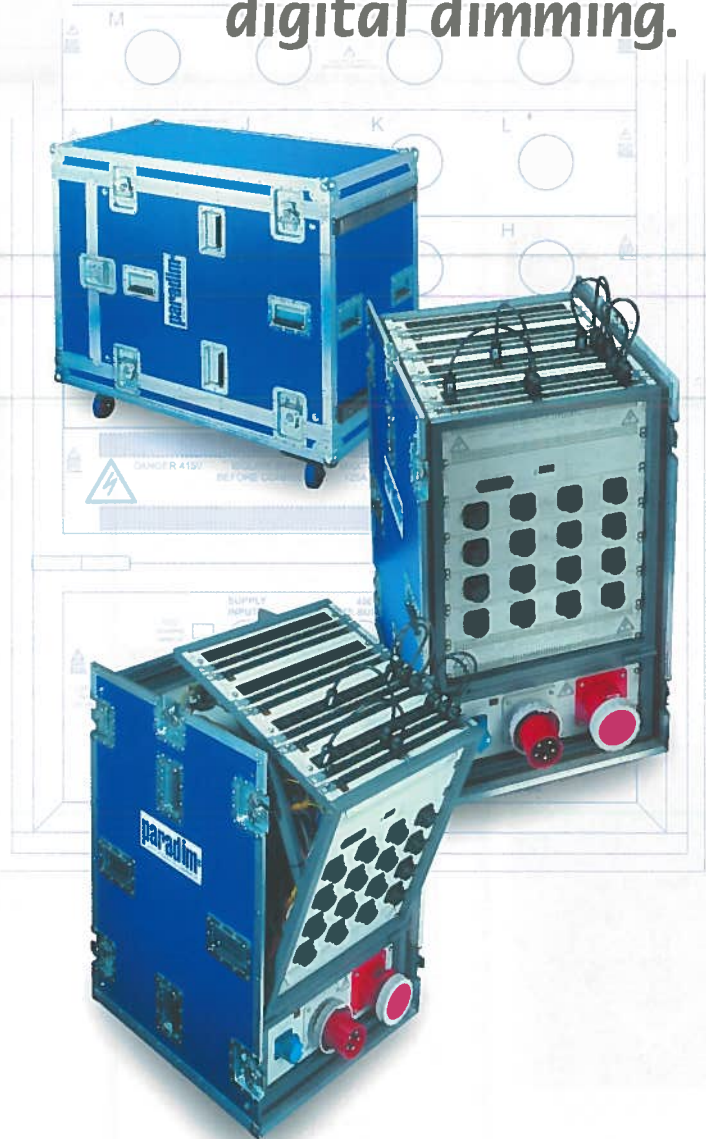
PLASA Member SigNET AC has been named North East regional winner in the Trade Partners UK National Languages for Export Awards 2001, in the category for small business, sponsored by NCM credit Insurance. The company, which specializes in the design and manufacture of voice alarm, paging and background music systems, won the award for changing its approach to doing business in a number of export markets.

Richard Sice, marketing manager told L&SI: "In order to be more competitive in international markets we have taken a strategic approach to the use of our human resources and policies. We have taken steps to hire people with native language skills and also to employ UK graduates who have studied a foreign language. In addition, we are taking a fresh look at our marketing documents and have translated key brochures and leaflets."

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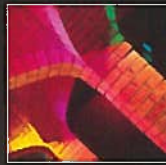
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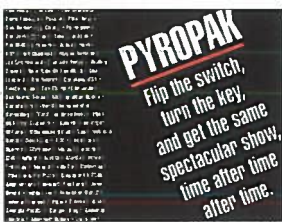


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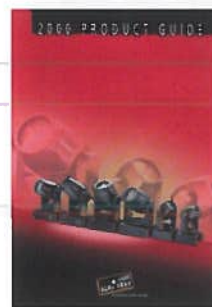
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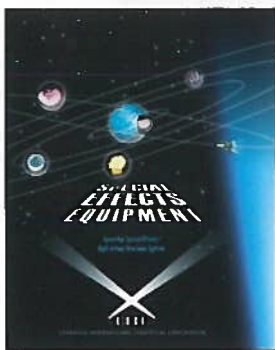
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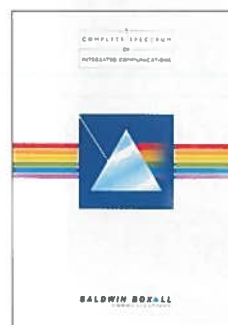
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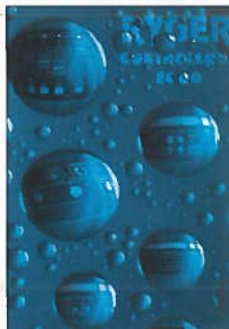
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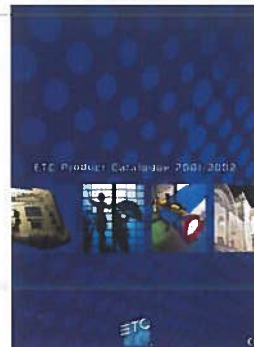
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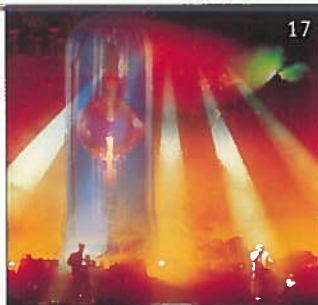
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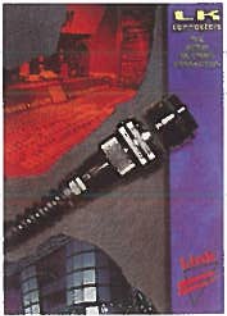
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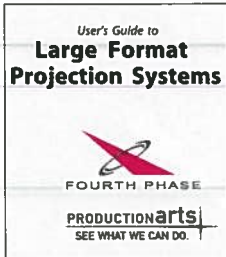
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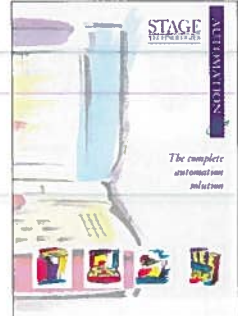
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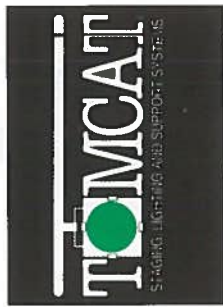
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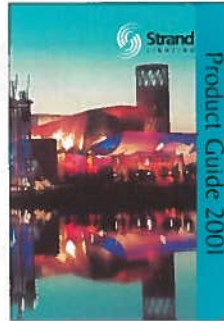
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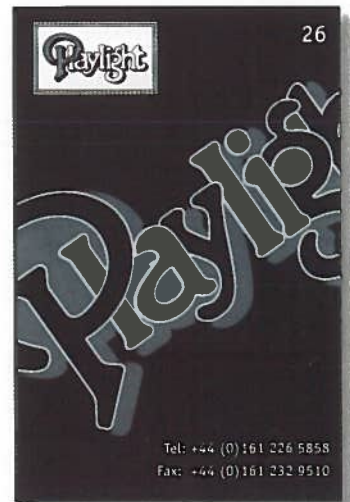
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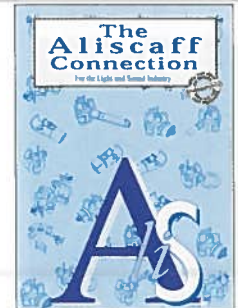
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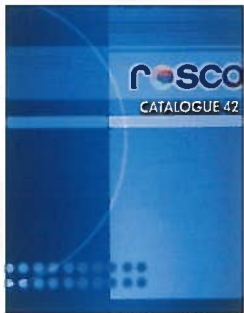
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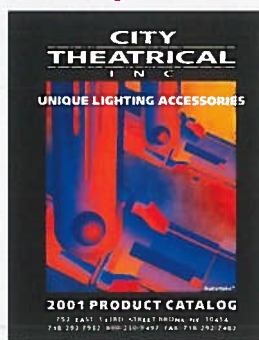
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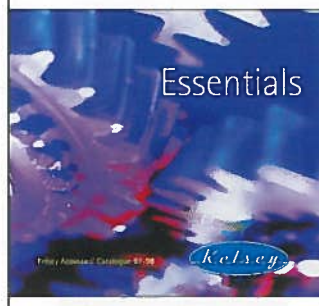
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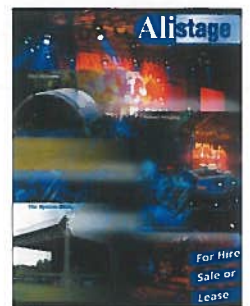
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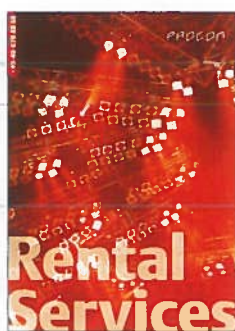
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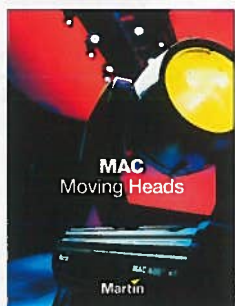
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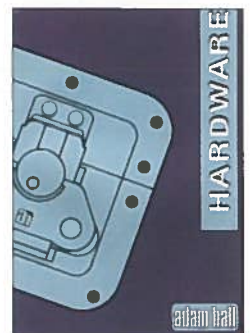
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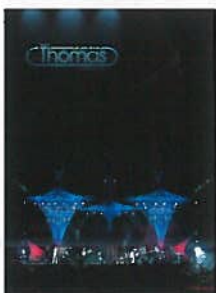
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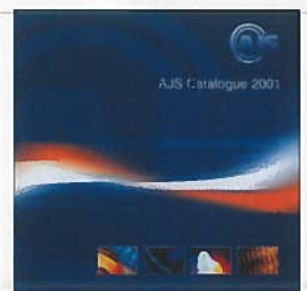
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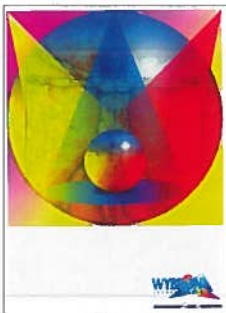
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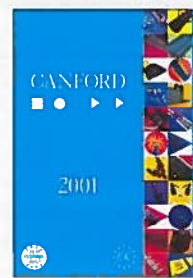
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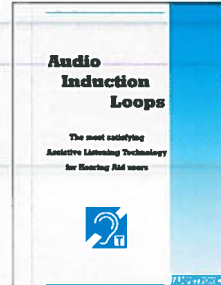
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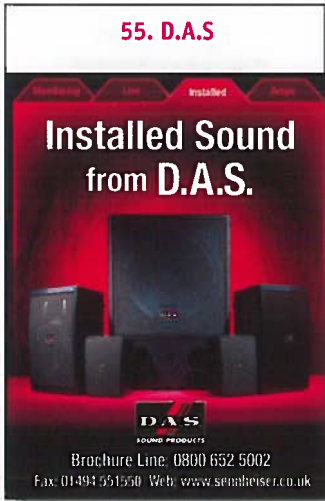
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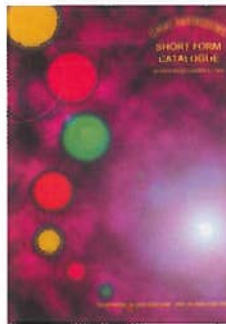
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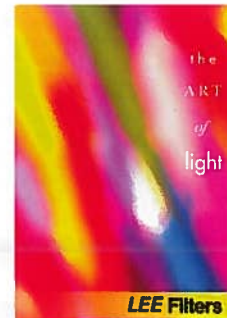
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63
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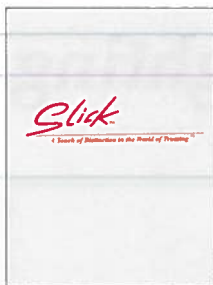
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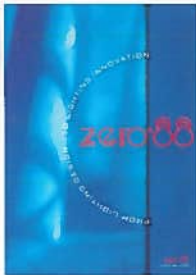


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AND OVER 30 DISTRIBUTORS WORLDWIDE

Welcome to the first of a regular new series which will feature product guides, discuss technical issues, assess the latest standards and health & safety directives, review recent book releases and feature a readers' Q&A section.

First subject in the hot-seat is digital signal processing. We'll also be looking at the recent amendments to the Working Time Directive and BECTU's campaign to secure paid annual leave for freelancers, together with the debate rumbling away about chain hoist connectors.

WHITE LED DRIVERS

Hot off the press this month is news that two large semiconductor manufacturers, Linear Technology and Toshiba, have developed white light emitting diode driver ICs that are more efficient and temperature compensated. Claims of up to 90% efficiency are quoted for one IC, amusingly though in pulse control mode. Could this be the same pulse method of control applied to LEDs that a certain US-based lighting company has patented for its LED range of wash lights? Maybe two of the world's largest semiconductor manufacturers are about to find they only have a single customer - use with caution!

COLOUR CODES

It appears that CENELEC, the European standards agency, is about to have its way with the three phase colour system. On the 1st January 2004, the IEE and BSI are scheduled to publish the proposed colour system of a blue neutral, brown L1, black L2 and grey L3. Installations will need to comply by the 1st April, 2006.

Whilst in a lot of cases, phases can be transposed, it will surely make it harder to identify different phases and keep them separate, not only in installations, but more importantly in temporary touring systems. What was wrong with the colourful red, yellow and blue one is not entirely clear, at least it could be said that it made the back of an MDU look pretty. L&SI will keep an eye on this, and let readers know of further developments. In the meantime, the full story can be obtained from the standards area of the PLASA website at [www.plasa.org/standands](http://www.plasa.org/standards)

NATIONAL INSPECTION COUNCIL

Those readers who are registered electrical contractors may be aware that the National Inspection Council for Electrical Installation Contractors is about to bring out a new quarterly updated technical manual. Rather than being another 'Guide to BS 7671'

regulations, the aim is to be topic-based, and then elaborate on a particular area quoting relevant regulations as applicable. On occasion there is debate about how to comply with various regulations, and this manual aims to give guidance to engineers in such situations as well as detailing 'best practice'. For those who are not members of the NICEIC, free sample topics of the manual can be downloaded from its website at

www.niceic.org.uk/tman/techmanual.asp

NOVELTY VALUE

Researchers in Cambridge have developed a system of sending control data at 20bits⁻¹ in the audible spectrum, rather than just outside the more usual upper boundary of above 20kHz. The technology, say Intrasonics, "uses direct sequence spread spectrum to make the data look like white noise, and then psycho-acoustic techniques to hide it."

Intended to be incorporated into such things as toys that will be able to dance in time to music on the TV, perhaps we'll be able to buy effigies of band members before a show that will all dance in unison on cue during the event. More serious applications might include audio-based remote control of equipment in flown rigs - although admittedly the data rate is quite inhibiting. The principal advantage is, of course, that it has potential to be used in the main PA of a show, whereas similar systems using 20kHz and above would be eliminated in the upper roll-off filters in speaker processors and amps. Being spread spectrum, it is also potentially safe from being eliminated by an over-zealous automatic feedback notch filter.

SURROUND SOUND

Scientists from EMI Central Research Laboratories (now called Scipher owing to a management buyout in 1996) have developed a new technology based on the way we hear sound. Called Three Dimensional Positional Audio (3DPA), the new technology is hailed as the biggest advance in the area since stereo. Marketed by Sensaura, a division of Scipher, the system claims to be incredibly realistic allowing the brain to imagine not only the left/right spatial positioning of a signal as in stereo, but also the front and back, above and below, all through a pair of speakers or headphones. This new technology will be covered in a subsequent issue. If you can't wait that long and want to have a listen, pop into the Science Museum in London where a demonstration system is in operation in the MacRobert award winners' area.

"EMPLOYERS MAY THINK THEIR DUTIES OF DUE CARE HAVE BEEN DISCHARGED WITH SUCH A SIGN-OFF, AND EQUALLY FREELANCERS WHO SUFFER BECAUSE THEY FORGOT THE SKID-LID AND BANGED THEIR HEAD ON A STAGE FLAT MAY THINK THAT IT'S THEIR OWN FAULT AND NO MORE IS SAID."

➤ FACTS FOR FREELANCERS - PAGE 50

STANDARDS AND H&S REVIEW

MOTOR CONTROL CONNECTORS

It appears that there has been a debate brewing over the use of 110V yellow Cee-form connectors for motor control. The connectors, commonly used for 110V site mains distribution in the UK, are, in some chain hoist motors, used as the control connector. In most applications the control is a single pole changeover with centre position 'off' to control motor direction, thus only requiring three connections.

On the face of it, it seems quite reasonable to use Cee-forms in this way, especially as the live control voltage is 110V. However, there are two issues that don't sit well. Firstly, the control voltage is

110V rms on the one conductor, rather than the site safety system of having a centre tapped supply to earth of 55-0-55V. Thus on the safety system, the maximum likely theoretical shock is limited to 55V unless the unfortunate user manages to touch both phase conductors (unlikely). With the motor control system, the 110V is present on one conductor thus doubling the potential shock voltage to the user.

The second, and more critical area of concern, is that the control voltage is normally present on the earth connection of the Cee-form, which is not a particularly satisfactory solution, even to the most novice of electricians. By way of an example, consider the scenario where Mr Chippy, set carpenter of distinction, comes onto site with his 110V tools (being the health and safety law abiding carpenter that he is), and sets to work.

Mr Chippy needs to saw up some MDF, and finding the female motor end of a control cable lying on the floor, plugs in his circular saw under the illusion that it is a 110V site safety supply. At best, Mr Chippy would get an unwelcome sensation when he touches the



The PLASA Standards Chain Hoist Forum at www.plasa.org/standards

"THIS PAVES THE WAY FOR HOLIDAY PAY FOR THOSE ON LONG TOURS OR SHOWS, WITHOUT UNSCRUPULOUS CLIENTS NEGOTIATING 12-WEEK CONTRACTS, AND THEN RENEWING THEM. ALSO AMENDED WAS THE ADDITION OF MONTHLY ACCRUAL FOR TAKING LEAVE IN THE FIRST YEAR OF EMPLOYMENT."

➤ WORKING TIME REGULATIONS

case whilst picking up the saw. At worst, the story might have a fatal ending.

Now, such an event is admittedly highly unlikely; virtually all power tools are double insulated these days unless extremely old, and neither are the hoists all that likely to be still connected to the mains via the motor controller with the control connectors lying loose on the floor. Nevertheless though, it is not impossible for such things to happen.

Accordingly, this safety issue has been brought to the attention of the PLASA Standards Office, and all parties concerned are actively engaged in finding a solution. It will no doubt involve considerable cost on the part of some manufacturers because both motors and controllers will have to be modified, so not surprisingly there may be resistance to change. So too for all the hire companies who have such motors in their rental stock.

One manufacturer has had its CE marking of the chain hoists refuted by a European country, on the basis that such wiring of the connector is in direct conflict with one particular standard that it claims to comply with. With regard to the connector, EN60204-1 quite clearly states (in slightly more succinct words), that 'thou shall not connect live mains to earth pin'. Pretty Noddy stuff, eh?

To join in the web forum on this issue, log on to the PLASA website and register under the Standards section. L&SI will keep readers updated.

FILTERED MAINS SUPPLY CONNECTORS

Keeping with the connector theme, there seems to be increasing use of Amphenol C16-1 connectors for filtered mains supplies, particularly in audio applications. The screw locking three pole and earth connector is fairly robust and also captive, unlike the IEC style (a.k.a kettle) connector commonly used, and has a similar rating.

As it is being more widely adopted, there is an issue as to how to wire the four terminals up.

Currently pin 4 is marked earth and should obviously remain. Logical suggestions are that the rest should follow that of standard three pin plugs, i.e. pin 1 neutral, 3 live and pin 2 not connected (see figure 1). Any suggestions will be gratefully received at the PLASA Standards Office who in turn will publish a guide as soon as possible.

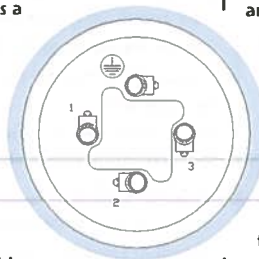


figure 1

Whilst on the subject of such mains connectors, is there much take up of Neutrik's Powercon? For those less familiar, the Powercon is a three pole mains version of the more ubiquitous Speakon speaker connector, rated at 20A. Whilst having a higher rating over IECs, they are also positive locking and easier to wire up. The disadvantage is that it is harder to get one's head round which is power out and power in, with both sexes looking similar. Many would agree that the phasing out of the IEC, because of its occasional unreliability in mating, would be a good thing, but it really needs the impetus of manufacturers to do a wholesale change, hence bringing the price down and making the Powercon more viable. Any offers?

FACTS FOR FREELANCERS

This little booklet is a must for any self employed people in the business. Published by the HSE and aimed at freelancers in the entertainment industry, it is an invaluable guide to what exactly are the obligations of freelance personnel whilst working on site.

Some companies now insist on their freelancers signing up to a 'contract' which invariably states the usual 'don't imbibe of alcohol, drugs and other mind enhancing substances, and wear hard hats and safety boots at all times' and so on. Whilst all quite valid points, it's true that not all are strictly adhered to all the time.

However, employers may think their duties of due care have been discharged with such a sign-off, and equally freelancers who suffer because they forgot the skid-lid and banged their head on a stage flat may think that it's their own fault and no more is said. This is not necessarily the case though. If you are working at height and fall off the truss, even though you are a competent and trained rigger, your employer may well find themselves having a hard time persuading the HSE that they did exercise due care to ensure that your welfare was being looked after, contract or no contract.

It may sound like good news to the freelancer who may be able to raise issue with the employer and claim for compensation. Whilst technically possible, it is also wise to remember what duties the freelancer has when on site, making the example above a bit of a grey area. To quote, "Those who are self employed must take care of their own health and safety and also that of anyone else who might be affected by their work." (our italics). So, when working at height next time, make sure your AJ is suitably fastened to your rigging knickers! Facts for Freelancers is available online at www.hse.gov.uk/pubns/indg217.htm



CODE OF PRACTICE

The BSI has published a code of practice for 'Design and Installation of temporary distribution systems

delivering a.c. electrical supplies for lighting, technical services and other entertainment related purposes'. Having been first published back in 1998, it is worth mentioning again as it makes important reading for anyone involved in temporary site-wide mains distribution. Even subjects such as correct wiring of socapex connectors is covered, as well as the correct use of RCDs and generator earth bonding.

The standard, BS7909, has had input from lots of relevant industry bodies, including PLASA, the ABTT, BECTU and the STLD. Copies are available at www.bsi-global.com, or for UK PLASA members from the PLASA Standards Office (with 25% discount!).

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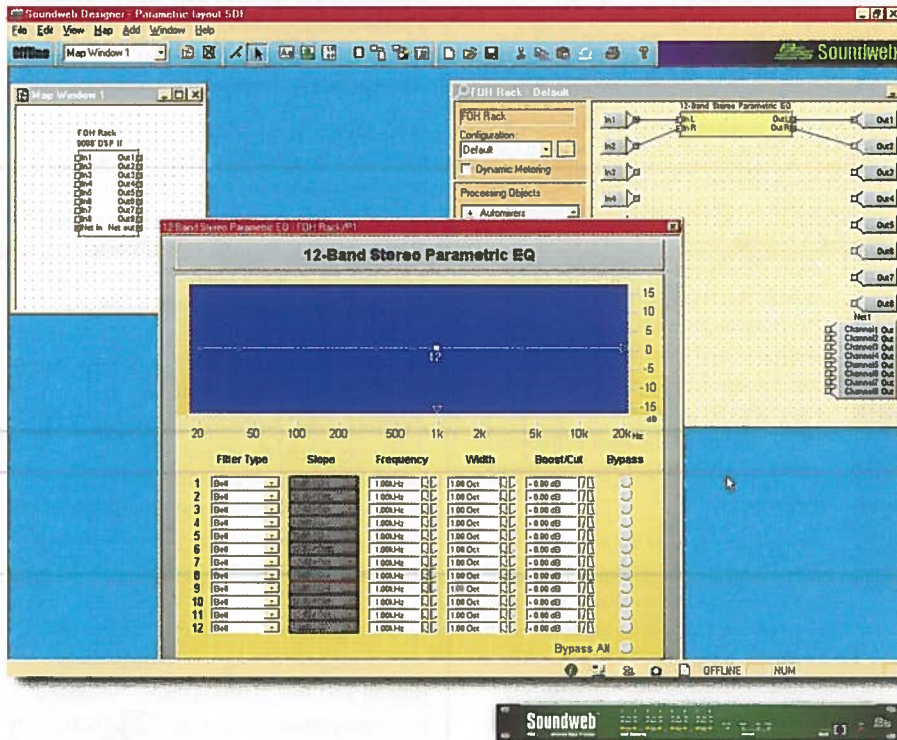
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WORKING TIME REGULATIONS

There has been much hype over the Working Time Regulations (WTR) that came into force on the 1st October 1998. What it has actually meant for freelancers, though, has been somewhat more unclear. Freelancers aren't classed as employees (in most cases), nor part-time workers. So the interpretation of the regulations were a little grey in that respect until June of this year when BECTU (The Broadcasting, Entertainment, Cinematograph and Theatre Union) took the Government to the European Court of Justice and won.

Essentially, BECTU forced an amendment to remove the 13-week qualifying period before the minimum four week paid annual leave entitlement is activated. This paves the way for holiday pay for those on long tours or shows, without unscrupulous clients negotiating 12 week contracts, and then renewing them. Also amended was the addition of monthly accrual for taking leave in the first year of employment.

In brief, the WTR stipulate that employers cannot make freelancers work more than 48 hours per week, although the freelancer can decide to work more; a right to 11 hours rest a day; a right to one day off per week; and a right to a rest break if the working day is longer than six hours.

There are some very useful parts of the WTR for freelancers, and more information can be found at the following website - www.dti.gov.uk/er/work_time_regs/index.html

QUESTIONS & ANSWERS

Q: Why and when is it necessary to terminate DMX lines? Sometimes on site I find that it can make things worse, causing lamps to jitter even more, or does nothing at all.

A: The termination of DMX lines is often a misunderstood topic, and yet is important in all intelligent lighting rigs. Firstly one must look at signal reflections in cable. If a long cable has a pulse applied at one end, having an open circuit at the other end will result in a reflection of that pulse with nearly the same phase and amplitude as the original. (If you like, it can be considered that the pulse has no where to go at the end, so it bounces back again). If the end were short circuited - a condition of zero voltage at that point - the pulse would become 180° out-of-phase and of (near) equal amplitude to oblige the zero volt condition imposed by the short circuit, thus

also destroying the original signal in the process. These reflections (in the open circuit case) travel back down the wire and if viewed on an oscilloscope appear as a slightly delayed smaller 'ghost' image of the original.

This is where problems crop up on DMX lines. If there is no termination (i.e. an open circuit), reflections occur and a moving light will see two copies of a signal at slightly different times potentially causing erratic behaviour. All cables have a 'characteristic impedance' (Z_0), meaning that a signal wave moving along the line has a voltage to current ratio equal to that cable impedance. It is important to 'match' the termination resistance to this cable impedance. A correct DMX cable (i.e. one specified for EIA485 data) normally has a specified impedance in the region of 85Ω to 150Ω. Adding a resistance at the end makes the cable appear to be infinitely long.

Ideally, the value of the termination resistance (R_t) should equal the Z_0 of the cable. This means that if a pulse is sent down the cable, it will be absorbed in the resistor with no reflections. Too low a value of R_t (near short-circuit) results in phase cancellation; too high a value (near open circuit) and complex waveforms result. Obviously all cables are slightly different, so one has to reach a reasonable compromise with R_t in the region of 90-120Ω. (Not 120kΩ as one well known AV company uses!)

This also explains why microphone cable shouldn't be used, and may make things worse. Yes, mic cable is more pleasant to coil and comes in pretty colours, but invariably they have wildly differing impedances (not to mention capacitances), ranging from 25Ω to beyond 200Ω. A mic cable terminated with 120Ω and with Z_0 of 25Ω, would result in a reflected wave of nearly two thirds the original amplitude. You might as well just leave the end open-circuit, rather than bother with a resistor.

In short, cables must be terminated to prevent reflections, and the end of every DMX line should have one; even if plugging into a buffer. If it has no effect on a problem when added, then the problem may be caused by overloading (no more than 32 units should be placed on a line), ground loop effects or cable faults.

Q: On our radio mic receivers I was told to position the aerials at 45° to the vertical. Why not have them vertical, the same as the belt-pack transmitters?

A: For best results, orientation of receiving antennas is dependant on that of the transmitting antenna. If the transmitting antenna is always vertically polarised (i.e. upright in respect to the earth's surface), then the same should be true of the receivers for maximum gain. However, this cannot always be guaranteed. Wire aerials on belt packs may get tucked into clothing in all manner of

orientations, or in the case of helical whip antennas, orientation depends on how the belt pack is fixed to the performer. As much as 20dB (a factor of ten) of the power may be lost between a vertically polarised transmitter and horizontally polarised receiver antenna (or vice versa) - rather a lot of signal at the low milliwatt output levels of radio mics.

Many shows use combinations of belt pack and hand-held mics, both of which may have different orientations from the vertical, and with all the receivers being fed from a single pair of antennas through a distribution amplifier. As a consequence, it is best to adopt a halfway house compromise of positioning them around 45°. If reception is a problem, perhaps over a long distance, consideration should be given to using twin high gain antennas at 90° to each other, such as a Yagi style array, correctly phased and cross polarised. Be careful over just joining two antennas together in opposite polarisation though, as they need to be properly 'phased' to ensure correct signal matching.

Q: I run a venue in the south west and am looking at fitting a new site-wide paging and fire alarm system. However, two companies invited to quote have given conflicting responses - one recommends that we must have a voice evacuation system as our venue holds more than 500 people; the other says the bells are OK and voice evacuation is not necessary. Who's right?

A: Interesting question. Technically speaking, there is no strict limit as to how many people a venue must hold before voice evacuation (VE) becomes desirable; it is also dependant on what escape routes there are and other building design considerations. BS 5588 (Fire precautions in the design, construction and use of buildings), recommends that for "buildings accommodating not more than 300 persons, or where a very low level of staffing is provided, the system should operate by initially alerting management and staff and then the public by public address system."

You didn't mention the actual venue capacity: if it's a stadium then you need to look at a completely different set of regulations. VE systems are generally recommended as the benefit of gently warning the public over the PA is less likely to induce panic than lots of bells and sirens sounding in unison. For a definitive answer, the person to ask is your local Fire Prevention Officer who will be best placed to assess the evacuation signal requirements in light of the capacity and design of the venue. For further information on the standards available, contact the PLASA Standards Office.

Burning question? Niggling problem? Too embarrassed to ask your mates? Then e-mail technical@plasa.org for an answer, because we guarantee you're not alone!

The New X-Frame 88

8 programmable level controls are accessible via front panel data wheel

Large LCD screen assists in accurate function management



8 input meters

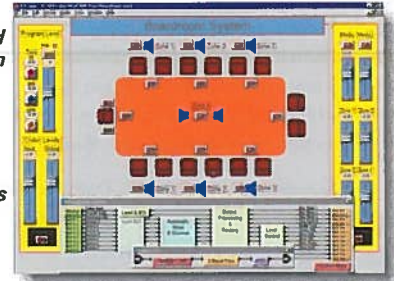
8 output meters

8 programmable front panel switches enable easy access to preset systems

Complete Digital Audio Processing System in 1 Rack Space.



Complex sound systems can be created, managed and then reconfigured on the fly, making the X-Frame 88 especially useful for multi-purpose venues. Pre-designed audio systems for many applications, such as this boardroom, aid the user in creating custom specific configurations.



Compare, point for point, Peavey's new X-Frame 88 and see why it is the top choice for your next installation.

Introducing the XFrame88. This new, one unit system is more powerful, more flexible



and packed with more features. The XFrame88 represents the ultimate in a fully user-definable digital audio system. It is designed for small to medium scale applications requiring stand-alone flexibility yet demanding multifunctional ability and vast audio processing device choices and configurations. The new Xframe88 clearly shows its award-winning MediaMatrix heritage. The years of digital audio experience ensure it will obsolete any competition in applications, including boardrooms, conference centers, auditoriums, entertainment and sporting venues, indeed anywhere complex audio processing is needed and space is limited. XFrame88, one rack space of infinite audio processing. Check out Peavey's new XFrame88 and see why it is the system for your next installation.

More Features

- 8 analog inputs
- 8 analog outputs
- 4 control voltage inputs
- 24-bit quantization
- Digital control of all I/O levels
- Audio metering of inputs and outputs
- LCD readout
- RS-232 port for computer connection
- Fault annunciation

More Power

- 4 Motorola 56002 DSPs
- 160 MIPS
- X-Ware 32-bit application software

More Flexibility

- 24 inputs by 24 outputs with two additional MM8802s
- Eight programmable front panel switches for presets
- Eight programmable level controls accessible via data wheel
- Remote control via RS-485/X-Net
- Software selectable sample rates of 32, 44.1, 48kHz
- Software selectable input and output levels
- Universal power supply

The Choice in a Digital Audio Processing System



An Introduction to DSPs

DSPs, or Digital Signal Processors, are found in many different audio products these days, from speaker processors to equalisers. However, the name 'DSP' is increasingly being used to refer to user-programmable 'black boxes' that are fast becoming the norm in installations, occasionally tours, and other areas where flexible audio routing and processing with occasional updating is necessary.

The principle behind such DSP systems is to perform all the effect processing and signal routing in the digital domain, which is cheaper, less complex and requires less components than the analogue equivalent. The analogue input signal is first converted into a digital stream of data, processed according to the required functions, and then, at the last minute, converted back to analogue again. Some units have digital inputs and/or outputs for connection to other digital equipment.

Generally, with some exceptions, DSPs are not really designed to replace a specific selection of products, but actually provide a complete customisable effects processing package in a box. The only variation between manufacturers' product is just how much processing they can each perform.

FUNCTIONALITY

Most DSPs have standard 'devices' such as EQs, compressors, limiters and mixers that can be included. The further up the range you go, the more complex the range of functions and the more processing power available - parametric EQs, duckers, noise generators and matrices to name a few. The overall result with a DSP is that the user can replace a loaded effects-rack of processing with a 1 or 2U box.

Another common feature is that of having completely 'twiddle-proof' front panels - invariably comprising power and signal present indicators with not much else. This is a great advantage for installations, in that no-one can readily adjust the settings after the engineers have left.

PROGRAMMING

Generally units come in a dummy state and if connected to a system will have no effect at all. A PC running appropriate software with an RS232 or network port is required to program units with the desired processing functions. Software from manufacturers is available as freeware, invariably off the web, which allows prospective purchasers to get a handle on what the system can do, and how much effects processing can be handled by the unit. The programming software is normally a cross between a CAD schematic layout program and Windows Paintbrush - fairly intuitive to get started with, but the tricks and shortcuts

required to delve into the actual processing blocks and make the designed rat's-nest more understandable, take a little while longer. If you're looking at buying a DSP for the first time, it makes sense to go to the manufacturer for a training course on the software. It's also important to note that all the processing is done inside the 'black box', and not the PC.

CONTROL

So, with your new small box of fully-programmed processing power, what can you do with it, and how? Again, it depends on the unit you're looking at. Leaving aside for a moment the 'fit-and-forget' applications such as speaker processors in installations, the next question to ask is whether frequent control of individual parameters is required. Most allow you to leave the PC connected with the software running so that changes to parameters, such as EQ, can be made in real time. Actual changes to the design of the system, such as re-routing signals (unless done in a matrix or mixer) or adding elements, will require compilation and uploading to the unit, a delay of half a minute or so.

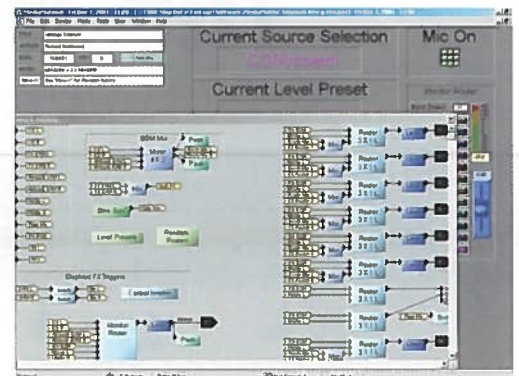
All, though, allow connection of a remote box that can instantly recall presets already programmed. Whilst this is generally of the contact closure type of control, some also have facility to control individual parameters via a potentiometer or similar.

This is where the functionality of DSPs begins to come into its own. Quite complex systems can be reconfigured at the touch of a button; different paging zones, music sources or PA configurations can be recalled. More importantly, particularly where emergency paging is required, music sources can be automatically muted and priority paging mics selected. All the parameters that may need to be altered in such an operation, such as EQs, compressors, source and output selections, happen seamlessly and instantly. Such versatility, coupled with the cost-effectiveness of fitting one box rather than 10, make DSPs an attractive alternative.

NETWORKING

The higher-end products of the DSP market have the ability to network units together, via standard CAT5 network cables. By piping the digitized audio across the network, the flexibility of the system is greatly increased, effectively giving them as much processing power and in/outputs as there are units in a networked system.

Other advantages are inherent in this too, such as enabling people to work on different parts of the system simultaneously. An engineer may



A typical screen shot - this one from the Peavey MediaMatrix

be in the amp room adjusting signals and settings, whilst another is on the stage with PC and wireless LAN adjusting the EQ.

TECHNOLOGY

Analogue to digital (A-D) and digital to analogue (D-A) conversion is nothing new; CDs, minidisks and PCs have been doing it for years. What is clever though, is the way the digital signal is processed after conversion. Different manufacturers use different algorithms - actual mathematical functions used to modify the digital data signal. The net result is that you will (arguably) get a slightly different sound for the same function across different manufacturers' products, so nothing new there. In the digital domain, the possibilities are seemingly endless as to what can be done to the signal, and great advantage is made of this.

Unless in a studio or similar location where actual signal conversion rates and speed become quite important, the various units on offer are all quite similar. Most offer 24bit analogue conversion, and up to 48bit processing. With conversion, this basically means that a 'snapshot' or sample of the signal is taken, and the analogue voltage at that point in time is represented in 24 binary digits - which is a lot of numbers and can give a resolution down to below 1µV. What is sometimes less widely quoted is the operating speed of the converter. If it only takes that sample every second, then the result would sound like noise, as the actual signal would change a lot in that one second period. It can be shown mathematically that the sampling frequency should be at least twice the upper frequency to be sampled. So, for a 20kHz bandwidth signal, the sampling rate should be 40kHz. For another reason though, known as aliasing, the frequency often adopted (particularly in CD players) is a few kHz higher, at 44.1kHz, so don't settle for less in high quality installations. Of course, in voice alarm and paging systems where the bandwidth can reasonably be reduced to 10 or even 5kHz, then lower sampling rates will suffice.

As far as the main processor goes, take with a pinch of salt wonderful-sounding stats such as how many 'MIPS' (Million Instructions Per Second) the processor can handle. A claim of being able to handle 100MIPS may sound impressive, but that soon subsides if poorly-written software means it takes 50 million instructions to retrieve the latest data from the input! To be fair, software engineers try to be as efficient as possible in writing code, but it can be vague nevertheless.

The easiest way to test how much processing power a unit has, is to program the software with processor intensive functions, such as parametric equalisers. This will then allow a 'rough and ready' comparison between manufacturers as to how much system functionality can be included before it can take no more. Again, whilst a useful indicator, there are other less obvious elements which may use up processor space - on some units, for example, having the -48dB/octave slope function turned on in the crossover menu uses space - even if you are only using -12, -18 or -24dB slope filters.

So, whilst there is no direct comparison between manufacturers, the best option is to obtain the operating software, and do some comparative designs - such as how many channels of 12-band parametric EQ the unit can handle. The PC software invariably keeps a tally of processor power used, even with no unit attached, and this will give a broad indication of how much is available. It's also worth noting how many seconds are available for delays - this shows how much memory is available in the unit, and is an indicator of the quality of design.

If looking at larger networks, such elements as propagation delays become important - audio signals cannot go through lots of processing boxes in no time at all. Also not all manufacturers actually pipe the audio across a network - the network is there for control only. Of those that do, then there are other elements to look at again, such as how much bandwidth is sacrificed for quantity of audio channels, or whether to use CAT5 cable or fibre.

REVIEW

There are many different types of digital signal processor available on the market. Here we profile products from eight prominent manufacturers and offer an overview of pertinent functions and attributes. All these units can be bought as standalone processors, programmed and left. There are more complex systems such as the Vadis made by Klotz Digital, an incredibly fast and flexible design. Based around a cardframe system, DSP, network and I/O cards are installed as required and then programmed. Similarly, there are systems such as the Yamaha DME32 which is, again, a fully programmable system, but not quite so geared towards distributed audio, but very effective as a recallable effects processor.

The aim is to give a good overview of the practical attributes, enabling readers to

quickly narrow down a selection of devices most suited to their purpose. To this end, some of what may be considered as the more 'esoteric' specifications have not been included in the table: performance data such as crosstalk, common mode rejection ratios, total harmonic distortion and noise figures can be readily obtained from the manufacturer, if they are a critical aspect of an installation.

CONTROL

All the units featured have the ability to be remotely-controlled via a panel of some description. There are principally two styles of analogue interface, contact closure or opening, and variable voltage. The contact style is straightforward and can recall such settings as muting or signal routing; the variable voltage style normally requires a potentiometer to adjust gain, EQ or similar variable attributes. The more complex units have dedicated remote control panels that interface via the networking ports. These panels are themselves programmed via the PC to give an even greater range of presets available to the end-user. Most units can also be controlled via AMX and Crestron systems.

Worthy of a mention in this area is a range of programmable remote control panels available from Audace, offering the user greater recall flexibility. These are designed to interface with a range of DSPs and programmable signal routers, with Biamp, BSS and Allen & Heath being among the list. Software revisions being worked on include updates for Peavey's MediaMatrix.

SYMETRIX 322



Starting at the smaller end of the scale, Symetrix have introduced the 322 - a small DSP with reduced features compared to its bigger competitors. Designed primarily for insertion between the mix outputs of a desk and the amps, it has all the relevant processing functions often required: LP and HP filters, crossovers, summation or splitting of input signals, PEQ and delays. The only drawback is that with having only two outputs, more units are needed for bi- or tri-amplified speaker systems. Unless, of course, another speaker processor is used - but that rather defeats the object!

Programming is via a Windows application, with a simple drag-and-drop interface. They can be daisy-chained together to provide greater flexibility via RS232. Four remote control ports are available, along with an analogue gain control to enable the user to recall various presets. RS485 is also present, giving potentially greater flexibility through other control systems.

► Tel: +1 (401) 364 7902
www.symetrixaudio.com

SYMNET

Moving up the scale, Symetrix have the SymNet Audio matrix 8x8 processor. This is a high end processor with full flexibility in terms of processing design. Units can be linked together using SymLink, a custom protocol using standard ethernet connection cables. Unlike ethernet though, the system is a ring network - units must be daisy-chained in series. Another potential disadvantage is that only a maximum 10 metre link can be installed between units - seriously limiting its use in large distributed audio applications. The symLink bus can pipe 64 channels of audio between units, and dedicated symLink in and output devices are available separately.

As well as the regular test functions available in the software such as noise and signal generators, SymNet designer is apparently the only one to have an oscilloscope function, as well as a range of other audio metering functions. Arguably not strictly necessary, it is quite a pleasant addition and useful for inspecting suspect incoming signals. External control is also very well catered for with eight analogue control inputs, six open collector outputs, three SPCO relays and RS485. Whilst the SymNet may not be ideal for large distributed audio systems, it is certainly well specified for most other applications.

► Tel: +1 (401) 364 7902
www.symetrixaudio.com

ALLEN & HEATH DR128/DR66

A&H have two digital installation mixers, the DR128 and DR66, the prime difference being quantity of channel in/outputs. The DR66 is a six in, six out unit with the DR128 being 12 in, 8 out. Programming is via the customary Windows interface, using their WinDR system manager software. The units have a selection of front panel switches that can be configured for functions such as gain control, mutes or patch control. Processing capability is fairly complete with all the usual EQ, gates, crossovers and compression included, but delay is an optional extra not fitted as standard.

Both units are networkable, but really only via a host PC. If a host PC is used, multiple serial ports are required to add further units, although an advantage with this is that the configuration can be altered remotely via Ethernet or a dial-up-connection. Another more unusual feature of the DR series is that it has the facility for a 24V d.c. backup power supply - ideally suiting it to emergency alarm systems.

► Tel: +44 (0)870 755 6250
www.allen-heath.com

MACKIE DX8

Mackie's DX8 is more a PC-controlled mixing station than a fully-customisable system, and is devoid of any serious processing such as delays, gates or crossovers. However, what it lacks in processing is made up for in auxiliary functions: direct bus feeds, recording outputs and 10

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each of logic control in/outputs; it also has the bonus of a 24V d.c. backup power supply input. There is facility to control levels from the front panel with LED signal level meters on each input. This may be perceived as a disadvantage from unwelcome 'knob-tweakers', but as a flexible auxiliary mixer such controls make it a useful backup, and the front panel controls can be locked out as required.



The addition of the new DX10E expansion card to the DX8 unit pulls the unit up into the serious install league. Whilst the connectivity is increased, the addition of the extra processing gives the software functions greater flexibility. Included in the software are more compressors, gates, crossover filters and tri-band swept EQs.

► Tel: +1 425-487-4333
www.mackie.com

RANE RPM 26V

The Rane RPM 26V (or the 26i - its digital in/out counterpart) is a system designed to integrate between the audio source and amps, providing all necessary EQ and recallable matrix routing. Whilst some functions such as gates are absent, everything required for speaker processing is there - crossovers, delays, EQ, compression, filters and so on.

The Windows interface is quite intuitive and easy to navigate, one advantage being that it can show an overall response curve for an output - quite useful if a complex system has been programmed and errors have crept in with odd values for crossovers, for example. Also in the software is a selection of pre-defined systems, mostly crossovers, that can speed up the design of an installation with only the actual parameters requiring alteration. Up to 16 units can be chained together for larger installations, and each can be individually-addressed allowing a single PC to program them all. Up to 16 different memories can be stored and recalled using the auxiliary contacts on the rear, or via AMX and Crestron controllers on the RS232 port. Rane also supply their own site control panel which gives the user the ability to recall all 16 memories.

With a minimum of indicators on the front panel, the RPM 26V is quite tamper-proof and the software can be protected via a password.

► Tel: +1 425-355-6000
www.rane.com

BSS SOUNDWEB

BSS have taken the large install market seriously and now have two products aimed at the install market, ProSys 8810 and Soundweb 9088ii. ProSys is a recent addition to the range, and unfortunately too late for the review. As an overview, ProSys has eight inputs and two main out plus eight auxes. Unlike the 9088ii, it is a dedicated path processor - i.e. there is a specified amount of processing available on each channel and this cannot be changed. Advantages though include Crown's IQ protocol as standard, and an optional CobraNet card. It is also one of the few units with an infra-red port.

The Soundweb 9088ii has all the necessary features and functionality required of either a FOH effects system or speaker processor, or both. The networking capability allows any number of units to be connected via standard CAT5 network cable, giving an unlimited number of inputs or outputs, as well as remote control stations. Dedicated hubs are also available for large networks.

Programming is again PC-based, via a Windows program. The software is 'layered' - the system is designed and parameters set, and a top 'layer' can be designed as a control panel-style interface allowing parameters to be adjusted without access to the actual 'system'. This layer can then be password-protected, allowing any required controls to be left available with the PC connected.

Remote control and recall of system settings is fairly straightforward. Analogue control inputs and contact closures are available on the rear panel, thus allowing custom interfaces to be made. Alternatively, BSS have a site-wide LCD control panel (the 'Jellyfish' - apparently its project codename, which then stuck). This connects via the network and has considerable flexibility, being programmed by the PC via the 9088ii. Different I/O modules are available for mic, line or digital signals, and all styles can be mixed on a network.

► Tel: +44 1707 660667
www.bss.co.uk

CROWN IQ-USM 810



Crown have the IQ-USM 810. Whilst not having the full functionality of the higher end processors, a fair amount of processing is included. With eight inputs and two principal outputs (eight aux outputs are available too), the Crown unit sits in the 'flexible mixer' category. Rather than a completely flexible processing system, there is a set of dedicated processing functions per input, including gates, compressors, delays, 8x8 matrix and so on. There is a further set of filters giving most required filter functions.

Control is either via front panel selection, or a fair array of analogue and TTL level control inputs and outputs. Alternatively the unit can

be controlled via Crown's IQ for windows software. The system has Crown's IQ network topology built in, allowing other IQ compliant devices to operate with the 810.

► Tel: +1 (219) 294-8250
www.crownaudio.com

PEAVEY MEDIA MATRIX

One of the earlier DSP systems, MediaMatrix (MM) now comes in many guises with various add-on components. The principal system, and covered here for comparison, is the MM X-Frame 88. This is the main processing unit, complete with eight inputs and outputs. Further expansion is possible using the MM-8802 break-out boxes (BoB) which give an additional eight each of inputs, outputs and control inputs and outputs. The MM has really been designed and aimed at the distributed sound reinforcement market, with plenty of functionality for remote control, programming and alarm interfacing - the only noticeably lacking aspect is the facility for an external 24V d.c. backup supply.

Software and programming is fairly straightforward, with the basics easy to design and operate via drag, drop and wire design. A slightly more unusual feature is that of three user-selectable A-D and D-A sample rates. The lowest is 32kHz which would allow a good useable bandwidth in the region of 12kHz, more than ample for speech-only applications and/or piped music. The highest is 48kHz, more than adequate for good quality audio.

The unit has a fairly functional front panel (lockable) with eight assignable buttons and rotary encoder, as well as indicators on inputs and outputs for signal indication. Remote control is available via contact closures and rotary potentiometers, with logic (TTL) control also available on the break-out boxes. Programming and control is via RS232, with the facility for RS485 catered for too.

► Tel: +44 1536 461234
www.peavey.com

BIAMP AUDIA

Biamp have recently introduced a new device, the Audia which seems set to compete with BSS and Peavey. Fully programmable via software, with a full complement of processing functions, there are three versions; each with or without CobraNet technology, allowing multiple units to be integrated (although audio cannot be piped between units). The facility for custom remote controls appears quite limited, although it has its own control bus allowing the possibility for Biamp control panel integration. An RS232 port is available, so control may be possible via AMX and Crestron controllers.

Programming, via Windows, requires in this case a 10/100 BaseT network card on the PC. This has only just come to market, but the brief glimpses and specs seen so far indicate that the Audia will be a near high-end device.

► Tel: +44 1562 820953
www.biamp.com

DIGITAL SIGNAL PROCESSING COMPARISON CHART

Manufacturer and Model	UK List Price Prices are exclusive of VAT	Inputs	Outputs	A-D & D-A Conversion	Max No. Stored Programs	Processor	Max Delay	Programming/Aux Control Method	Aux Preset Select Controls	Aux Variable Controls	Max No. of Processors in Chain
Symetrix 322	£589	2 line level screw terminal	2 line level screw terminal	24bit, no quoted sampling rate	4	24bit, no quoted speed	NQ	RS232	4 contact closure	1	16
Symetrix SymNet Audio 8x8	£2,985	8 balanced on Euroblock screw terminals	8 balanced on Euroblock screw terminals	24bit 128x oversampling	Not quoted	Analog Devices 32/40bit SHARC floating point	Not quoted	RS232	8 analogue or TTL inputs 0-10V	8 (see left)	Limited by SymLink Bus
Allen & Heath DR66	£978.92	2 balanced mic on XLR 4 line level on phono	6 balanced on XLR	20bit 48kHz	99	2 Motorola 56002 24bit (additional processors available on expansion card)	680mS per channel with optional DSPd card	RS232	12	Nil	Limited by serial ports on host PC(1)
Allen & Heath DR128	£1745.96	8 balanced XLR mic level, 4 line level phono	8 balanced XLR	24bit A-D, 20bit D-A 48kHz	99	2 Motorola 56002 24bit (additional processors available on expansion card)	680mS per channel with optional DSPd card	RS232	8	Nil	Limited by serial ports on host PC(1)
Mackie DX8	£1,480	8 line or mic inputs, two mix bus direct inputs, all balanced on screw terminals	2 master out (balanced, screw term), 2 record out (phono), 8 direct out unbalanced on 15-way D type	24bit, no quoted sampling rate	16	5 x 32bit floating point	Not available	RS232	10 i/p and 10 o/p on 25-way D type connector	Nil	Nil
Mackie DX10E (DX8 with expansion card)	£2,230 (Expansion card £750)	As DX8	Additional 8 balanced on screw terminals	As DX8	32	As DX8	Ten delay lines, max delay not quoted	As DX8	As DX8	As DX8	As DX8
Rane RPM26V	£999	2 balanced on screw terminals (optional isolation transformer)	6 balanced on screw terminals	24bit at 50kHz	16	24bit, no quoted speed	Delay on 2 inputs up to 1301mS	RS232	16	Nil	16
BSS Soundweb 9088ii	£3,075 (2 x 4 input mic cards)	2 x 4 i/p mic OR line balanced on screw terminals	8 balanced on screw terminals	24bit 48kHz	Limited only by controllers connected	200MIPS	11 seconds	RS232/ ethernet	8 logic inputs, 8 logic outputs	2	Unlimited
BSS 9008 (Expansion Unit)	£2,200	Nil	8 balanced on screw terminals	24bit 48kHz	As 9088ii	200MIPS	11 seconds	RS232/ ethernet	As 9088ii	As 9088ii	Unlimited
Biamp Audia 8x8	£3,900 or with CobraNet £5,200	8 balanced on screw terminals	8 balanced on screw terminals	24bit, no quoted sampling rate	Not quoted	Six 60MHz 32bit floating point Analog Devices SHARC DSPs (360flops)	0-2 seconds	Ethernet	Via serial port adaptor card	Nil	Limited by CobraNet network
Biamp Audia 12x4	£3,900 or with CobraNet £5,200	12 balanced on screw terminals	4 balanced on screw terminals	24bit, no quoted sampling rate	Not quoted	Six 60MHz 32bit floating point Analog Devices SHARC DSPs (360flops)	0-2 seconds	Ethernet	Via serial port adaptor card	Nil	Limited by CobraNet network
Biamp Audia 4x12	£3,900 or with CobraNet £5,200	4 balanced on screw terminals	12 balanced on screw terminals	24bit, no quoted sampling rate	Not quoted	Six 60MHz 32bit floating point Analog Devices SHARC DSPs (360flops)	0-2 seconds	Ethernet	Via serial port adaptor card	Nil	Limited by CobraNet network
Peavey Media Matrix X-Frame 88	£2,950	8 balanced on screw terminals	8 balanced on screw terminals	24bit user selectable 32, 44.1 and 48kHz rates	Dependant on remote interfaces connected	24bit 80MHz DSP cycle Motorola 56002	Not quoted	RS232/RS485	4	1	Limited by breakout boxes
Peavey MM8082 BoB (Expansion Unit)	£1,380	8 balanced on screw terminals	8 balanced on screw terminals	24bit user selectable 32, 44.1 and 48kHz rates	Dependant on remote interfaces connected	24bit 80MHz DSP cycle Motorola 56002	Not quoted	RS232/RS485	No inputs, eight TTL outputs	8 0-10V dc	N/A
Crown IQ-USM 810	£3,360	8 balanced on screw terminals	10 balanced on screw terminals (2 main outs, plus 8 auxiliary)	24bit, 48kHz	32	240MIPS 32bit floating point	Not quoted	RS232/Crown IQ system	16 TTL Logic outs, 8 configurable as logic or analogue inputs	Max 8	Limited by IQ network capability

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Biamp's Audia

OVERVIEW

The choice of unit depends on the application intended. There is some mileage in 'aiming high' and specifying the higher range units to cater for future expansion of an installation. However, if, for the most part, installs are small venues with small budgets then much can be gained from the lower-specified options - which have cost benefits and the attendant savings in site time and wiring. Costs are given in the table for comparison - they are quoted UK list prices so shop around to get the best deals.

Again, the most effective way to learn a system is to download the manufacturer's software and 'play' with it - this will give you the best idea of what will suffice for your application before proceeding. Bear in mind though that lots more benefits and functionality may be in the software than first greets the eye. Happy processing!

If you need to download this article you can find it on the web at www.plasa.org/media

RECOMMENDED READING

AUDIO AND HI-FI HANDBOOK

Ian Sinclair, Technical Author

Written by a team of experts, this guide has proved to be an invaluable resource for engineers.
ISBN: 0750649755 PRICE: £30.00

AUDIO ELECTRONICS (2ND EDITION)

John Linsley Hood

This book focuses on the electronics of audio design and explores the principles that underly the successful design of analog and digital equipment.
ISBN: 0750643323 PRICE: £25.00

AUDIO ENGINEER'S REFERENCE BOOK

Edited by Michael Talbot-Smith

An authoritative volume on all aspects of audio engineering and technology including basic mathematics, acoustics, psychoacoustics, microphones, loudspeakers and studio installations.
ISBN: 0240516850 PRICE: £55.00

AUDIO SYSTEMS DESIGN AND INSTALLATION

Philip Giddings

This is a book which reveals the trade secrets of optimized performance of audio (and video) systems. It contains a wealth of ideas and data which are invaluable to anyone working in the industry.
ISBN: 0240802861 PRICE: £37.50

BACK TO BASICS AUDIO

Julian Nathan

A thorough, yet approachable handbook on audio electronics theory and equipment.
ISBN: 0750699671 PRICE: £27.50

DIGITAL INTERFACE HANDBOOK (2ND EDITION)

Francis Rumsey and John Watkinson

The Digital Interface Handbook is a thoroughly detailed manual for those who need to get to grips with digital audio and video systems.
ISBN: 0240513967 PRICE: £29.99

HANDBOOK FOR SOUND ENGINEERS (3RD EDITION)

Edited by Glen M Ballou

A complete audio guide, written by some of the top experts in the field.
ISBN: 0240804546 PRICE: £85.00

SOUND ENGINEER'S POCKET BOOK (2ND EDITION)

Michael Talbot-Smith

A handy source of essential data that every sound technician needs.
ISBN: 0240516125 PRICE: £14.99

SOUND SYSTEMS ENGINEERING (2ND EDITION)

Carolyn Davis and Don Davis

An indispensable guide in the day-to-day work of designing sound systems.
ISBN: 0240803051 PRICE: £42.50

THE ART OF DIGITAL AUDIO (3RD EDITION)

John Watkinson

A comprehensive book on digital audio to date and widely acclaimed as an industry 'bible'.
ISBN: 0240515870 PRICE: £55.00

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PHOTOS BY T. CHARLES ERICSON

28 CXIs signal the impending storm (and Jupiter's arrival) with a gradual shift from bright red to tempestuous greens and blues during Boston's Huntington Theatre's staging of Moliere's *Amphitryon*.



PHOTO BY CAROLINA MHNAMARA

Rick Siegel used his 42 CXIs to pre-set 20 different moods for the songs performed on *The Bee Gees: This is Where You Come In*, An A&E Live by Request Special Edition Production. They gave him "many things to play with" and—more importantly—greater control to correct for television. "With the CXIs, we could look at the stage on the television monitor, decide if there was too much chroma or saturation, and make any necessary adjustments."



PHOTO BY NANCY LOCH

The Ballet Conservatory in Texas brought in prima ballerinas from The New York City Ballet and American Ballet Theater, as well as "prima" lighting designer Vince Caglianone from Pelton Marsh Kinsella to elevate its student production of *Giselle*. Caglianone used 16 CXIs and "liked the colour control...a large range of colours. And even with the darker colours, I didn't lose the lighting intensity."

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Pulp Fiction

*Steve Moles and Pulp get Together
for a night at York Barbican*

This is a welcome return by a band of astonishingly under-rated talent. Well, so say I - all we've seen of them in the past year is the festival circuit and Anglo-Saxon music has been the poorer for it. While Jarvis Cocker undoubtedly has the charisma to project across the verdant acres, it's hardly the place for a lyrical style rooted firmly in the urban.

On tonight's showing they've lost none of the sharpness that is their primary talent. Well delivered musically, the performance contains all the dispassionate cool that bands like Oasis crave while managing only a weak wink of insouciance.

Stagecraft is an ephemeral talent: 25 years ago it was my pleasure to work for Iggy Pop. At the height of his physical powers, he would writhe, contort and spasm his way around stage, wrapping himself and his band in twisted metres of microphone cord. The first night on the job I ran out at the end of the opening song, unplugged his mic, disentangled the cord and plugged him back in. "Don't ever do that again," he said, in that rich Detroit baritone of his. Sure enough, thereafter, still appearing physically out of control, he would slowly untie the knots in the following song. I'd not encountered such presence of mind since. Until tonight, that is, when monitor man Justin Grealy revealed a little-known secret about Mr Cocker.

AUDIO

This is an all-Entec show, sound and lights - it's not often you get to say that these days, and all the nicer for being able to see the benefits in a happy, integrated crew. Not bad for a three-week 'quickie' of a tour and all the pressures that can produce.

Out in the house Matt Butcher has the job of pulling all the strands of Pulp into a cohesive whole, a task he deftly plays down. "There are not a lot of dramatic changes; despite having a Heritage 3000, I don't need the automation at all." There are other things he doesn't need: "I have a pair of Summit TLA100s in the rack, but I don't use them either. To be honest, they're too noisy for the quiet bits, and when I do need them, the Behringer Composers are good enough. I'm also carrying a BSS Opal in case I want to de'ess anything, but Jarvis is a good enough crooner - touch wood - so I haven't needed that either."

That's not to say that I found Butcher in the pub during the show: there is plenty to keep him busy, but after four years in the driving seat he's generally reached the point of maximum effect, minimum interference.



In spite of what he says there is a great deal of dramatic change in this music: between Jarvis Cocker and the two guitarists proper, guitars come and go with impressive regularity; six and 12-string acoustic, a battery of electrics, often changing in mid-song. And the musical style is volatile to say the least, the soaring balladic virtues of the latest single 'Trees', with all the huge sixties production that Scott Walker can muster, is immediately counter-balanced by full-on Punk from 'Anorexic Baby'.

There is one tool Butcher uses, one he built himself. "It's a home-made compressor, based on an old Telequipment LA2, a classic machine popular in the sixties. Basically, it's a light bulb compressor; an electro-luminescent panel driven by a valve, packed in a black box with a light dependant resistor. As the panel brightens the resistance goes down. I've got it across the whole drum sub-mix, with the low end taken out on the side chain. It gives a very nice sounding suck-down on things like the cymbals."

All a bit esoteric for a mere scribbler, but hey, the cymbals sounded good to me, so too the toms. "To be honest, I don't usually compress drums like that, but I think it gives a nice fat and chunky, compressed-air sound to them." I'll have to admit defeat on the 'compressed air' sound, but 'fat and chunky'? Well, we liked that, and so beautifully rendered by the system - 'articulate' is the word they use in all those posh hi-fi magazines. Dix points for Butcher's Heath Robinson approach.

"Effects-wise it's all pretty standard. An H3000 for vocal thickening, but very little as he does have very full tonal quality," said Butcher. "Same for a bit of vocal plate off the PCM70, and SDE3000 for a touch delay, again thickening. Oh, and a pair of SPXs [a 900 and a 1000] for odds and sods." It was all beginning to sound too easy.

"It's the system - flat and even, no nasty off-axis stuff, and it's so efficient. I can't believe how little current we





Above, Matt Butcher at his Heritage desk; inset, monitor engineer Justin Grealy; far right, LD Tony Fagan at work on the Wholehog II

draw, eight stacks of dBb C4s a side with two B2 subs, and we're only pulling six amps each side. The monitors and backline pull 25." And the desk? "Well, like everyone else I love the EQ, but I don't like the colour," he said, but then added: "Actually, the colour does make it easier to see what's going on; and it's such a small desk for so many facilities." So I think Bob Doyle will sleep easy tonight.

MONITORS

This is where it all starts to get interesting. "I have a proper relationship with Pulp," said Justin Grealy who has been with them "with the exception of one or two gigs," since they supported Oasis at Sheffield Arena in '95. Grealy is a veteran and as a native of Nottingham can even recall John Penn when he had long hair and SSE was not even a twinkle in his eye.

"I've been very lucky," says Grealy. "I've reached the age where I can't be bothered with some youngster shouting his mouth off, and I've become a bit more choosy." Strange, I could have sworn I heard an approving murmuring in the far distance. "I know there's a lot of monitor men out there making a great deal of money from boy-bands and the like, but I'd rather be doing this." But surely, even Jarvis gets a touch cranky from time to time? "Yes, and we all know what's said in the heat of the moment is not meant; the point is, he, or any other member of the band, will come and apologise after the show. That's very civilised and makes for a great relationship." It also makes Grealy an extremely attentive operator.

"The monitor system is fairly basic - I've got an XL3 with a stretch for the support band, a bunch of KT360s, a few Gates and some Behringer Composers. Oh, and a Sabine Power Q as my 'get out of jail card'." The feedback exterminator is inserted on Jarvis and Richard Hawley's vocal channels.

"Jarvis has recently taken to wearing a single in-ear Shure 700. He takes dry vocal and some music to pitch from, usually keyboards." Despite the potential drawbacks of the single-ear scenario, Grealy derives great benefit from the arrangement: "I can now reduce the level of the lead vocal mic all over stage." Besides a fleet of APW wedges ("best wedges in the world" says Grealy), Entec has supplied C7s for side-fills. "Generally they've just got some sequence stuff in them, but they're insurance, it's not unknown for Jarvis to toss the belt pack my way. He sweats a lot and can get pissed off with the earpiece slipping out. I've tried all types of tape, none of which lasts the course, but I've finally found something that works." (See Tips for Grealy's ingenious solution.)

"There's lots of cues in the show," he continued, alluding to the frequent guitar changes Butcher mentioned before. "There are even changes of bass guitar, mid-song. And there's a massive variance in the

dynamics - you can go from the sound of breaking glass to nylon guitar strings in a second."

All of the band take quite different mixes. "Steve on bass takes a lot of drums (this despite being right on top of them), including toms and his own bass, a little guitar and keys, and a touch of vocals. In contrast, Mark Webber likes it quiet, mostly himself and just a little drums for timing. You end up with parts of the stage below 100dB, while downstage left can be up around 110dB."

One unusual, but entirely sensible quirk of this production is that Grealy supplies all the stage microphones. A bit of an

income boost - and why not? - the further rationale behind this arrangement makes perfect sense. "When we go abroad, especially when we're playing the festival circuit, the band really like the continuity." Grealy is not a one-brand man either, as he explained. "I've got a Shure Beta52 and a 91 on the kick. The snare drum has a 57A on top, with a Beta98 below. I like the 98 - it's more convenient to rig off the snare stand on one of those little clips, which gets it right in under the snare, two thirds into the centre of the

bottom head. That gives great snare sound - and I can get a lot more attack off a small diaphragm like the 98. Half an inch off the snare, and with a bit of judicious gating, and you've got real variety." An attention to detail that points heavily to Grealy's experiences mixing out in the house.

Continuing round the kit, Grealy has an MD504 from Sennheiser on the toms, C44s for overheads and uses 57s for the guitarists' 4 x 12 cabinets. For the Fender Twins he reverts to MD509s, "a mic I've come to like very much." For vocals he has Cocker on an Audix OM3 XB, and this is where it gets really interesting, as regards Cocker's stagecraft. "As a vocal mic it's fairly typical - it has flat response and good back rejection. I like it for the way it's sensitive proportionally to the distance away from the mouth. It doesn't have that 2" power band of the 58, for example. Jarvis also likes to sing across the top of the mic, something it catches well." Watching Cocker perform it's obvious, visually and audibly, that he's an avid student of mic positioning to vary the dynamic of his projection. "But Jarvis uses two mics, one a normal cable, the other five wire, with a small switch heat shrunk onto the XLR. It plugs into a Studio Vocalist machine made by Digitech, positioned round behind the keyboard set-up. This gives two outputs - dry and modified, with the Vocoder in the side chain."

Basically the machine accesses pre-determined effects 'patched' to any song/scene - call it what you like. Cocker uses the switch on his mic to click through to the effect he wants. "He does his own vocal harmonies and effects. It's all controlled by Roger the stage manager - he has all the song sheets and sets the machine to the right song as the show progresses. It's real fun." It's also amazing that Cocker has the presence of mind to control such a thing while holding the audience's attention with his compelling performance.

LIGHTING

Unlike his other desk-bound counterparts, Tony Fagan has been with the band just a few short months. "I joined them in the summer for their festival appearances, and they've kept me on." Could be Fagan's good fortune; with the new album receiving far more positive critical acclaim than 'Hardcore', I'd be surprised if this little outing isn't followed up by a more extensive tour next year. After all, there are showcases in Barcelona and Dublin, and three sold-out Brixtons, which is a Wembley Arena by any other name, though sadly even Mr Cocker's expansive charisma is best viewed in more intimate settings. But that's ultimately true of any performer, and economies of scale must be allowed their head sometimes.



"My brief was simple," continued Fagan, "big blocks of colour, and a theatrical feel." Much of that was predetermined by the band's own input to the visual aspect of the show - video projection. Nothing revolutionary in terms of technology - a twin Barco SLM G5 projection system from XL Video playing onto a simple 16:9 aspect screen - the content is all of the band's own making. None of it's compelling, in the sense that it demands to be looked at, but all suits the show by either direct association, or abstracted reference. I found it no greater and no lesser influence than the lights, and I liked it very much for that.

"For me, the screen dominates, in that it determines what I do. It's actually on for about 50% of the show," - the band vary the show's song list with excruciating regularity - "and the screen is too big to be left blank."

The rig is simple. Supplied by Entec, it comprises six MAC 600s and a pair of MAC 500s on the front truss, and eight MAC 500s, four strings of ACLs and four Molefays with Wybron scrollers on the back truss. That's it. "They don't like followspots, unless they're up on the truss - not feasible on this rig - so I run the Hog II on Override, so I can grab the lights and move them onto Cocker. That can be quite hairy since you never know what he's going to do and where he's going to go - up on the PA, out into the crowd, anywhere." Not that this prevents Fagan tracking Cocker with some precision when he ventures abroad, so I guess he's got used to that particular foible pretty rapidly.



In general, the big blocks of colour are more refined than Fagan would have us believe, the 600s are often kept beamy, and I particularly enjoyed his tendency to keep some looks entirely monochrome. Like another, though much more well-known LD, he has some extreme colour choices that, ugly in isolation, actually work rather well when played out on stage. The only sad point of the evening was the non-appearance of the six 2KW Ripple machines Fagan has in the rig for some backdrop effects work in 'River', a song dropped from the set for tonight's performance. "Still got to rig the damn things though," he grumbled.

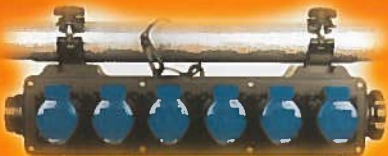
The other thing I missed was the aroma. Fagan assured me the band has an aroma machine backstage that produces the smell of fresh-cut grass, "on from the moment the support band first come on stage, so it's well established by the time they come out. It's a Jarvis thing." But I'm buggered if I could smell it.

PULP FACTOIDS

Justin Grealy first saw Pulp in 1984: "There have been some changes since then, but essentially it's still the same band."

The problem with wearing just a single plug of an in-ear system is balance. "Quite simply, having two plugs in spreads the load of the wire to the belt pack. Because they share the strain, they're less prone to slip out under the weight of the cable. After much experimentation I've found those curled, bi-metal hair clips are the best solution. Clip the cable to the collar of his shirt and the added strain relief does the trick. If you're in a bind, one of those clip fasteners you sometimes see on stage passes does the job. A bit bulky in the long run, but they're a good short-term fix."

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... Audio File

Synthesizer god and composer of 'Oxygene' Jean Michel Jarre has contributed to our search for the most difficult sound reinforcement challenge of all time. Next spring he will perform one of his trademark extravaganzas on a Danish wind farm.

"Every pro audio company I know of that has dealings with China says the same two things: it's a sleeping giant, promising untold wealth, and it's a cheap place to have components mounted in a chassis"

THIS, IN ITSELF, would be quite tricky but only for the usual reasons of combining his multi-channel noodlings with a cast of acoustic thousands, albeit in a strong breeze. But where the former husband of Charlotte Rampling really throws down the gauntlet, is in announcing that the whole concert be powered by wind, sourcing energy from the site's 45 environmentally friendly windmills.

CONTRIBUTING TO the elemental

resources necessary for such a feat are potential event sponsors Carlsberg and Tuborg, makers of lager. Lager is well known for its ability to create mistral-like isobars across low-lying regions, and the sponsorship package - should it go ahead - is an apt one. "We can use the wind in our favour," as Jarre himself says.

HE GOES ON TO SAY: "When talking about the wind, people nearly always state what damage it can cause." Too right. Any amplifier manufacturer will tell you the perennial hazards of too much hot air in the wrong places.

COULDN'T RESIST PASSING on another gem from Germany, where a musical opened recently called *Lady Diana - A Smile Enchants The World*. Audiences in Saarbrücken are enjoying a production that somehow manages to interweave song and light drama as it tackles the late princess's battle with an eating disorder - among other human interest themes.

THE NARRATIVE ENDS - perhaps with accordion accompaniment? - with the Parisian tunnel car wreck that ended her life. The producer, Karl-Heinz Stracke, is clearly a misunderstood genius, because his overtures to London theatrical circles have been met with something less than enthusiasm. When asked by Stracke if members of the Royal family might be tempted along to see the production, a Palace spokesman is noted as saying: "Highly unlikely."

NOTWITHSTANDING ENCOURAGING SIGNS at the consumer end of entertainment technology - like remarkably strong DVD sales - the first pro victims of 11 September have made their curtain call. The closure of the studio RG Jones followed quickly after news that both Out Board Electronics and ARX International are hanging up their decibels, two relatively small UK operations with contrasting portfolios. Out Board were the makers of TiMax, the ground-breaking DSP system that brought three-dimensional audio to the theatre and way beyond. ARX International was the one-man European arm of Melbourne-based speaker mainstay ARX, still going strong in the Pacific Rim.

TIMAX IS ALMOST CERTAIN to re-surface, with the still-intact team of Robin Whittaker and Dave Haydon retrieving the company's assets and continuing key projects, while ARX's former London agent Ollie Reed has come to the end of the line. Speaking to him, he is resigned and open-minded and considering options outside of the industry, while head office back in Melbourne is citing insufficient European business to maintain the overhead.

COMPETITION IN EUROPE is probably at its peak. The continental manufacturers are learning the full dictionary of English marketing, while the Americans continue to plant vine on European soil. Two UK speaker manufacturers - Martin Audio and Tannoy - are now on the brink of significant creative investment, if the TC Group deal goes ahead. In this climate, one heavy shower can tip the balance for a small independent or an outsider.

WHAT TIMAX AND TC have in common is the magic ingredient, DSP. The former is a product - not unlike Garwood's IEM - which, in theory, and but for the grace of international politics and economics, should guarantee its own future by sheer originality. It remains for the management of it to reel in the industry's obvious good faith and keep the technology at the helm. The latter is a company that has spent the last 10 years mastering the art of selling and sustaining brilliant DSP solutions to quicksilver markets, and it's impossible not to imagine significant new technology emerging from a liaison with Martin and Tannoy - just as the Air Series is the first-born of a similar marriage to Dynaudio Acoustics.

QUIETLY ALMOST, CHINA has slipped in to become a member of the World Trade Organisation (WTO). While protesters burned WTO flags in The Philippines (decorated with stars and stripes, of course), 1.3 billion people stepped into the global trading system built by the west. Every pro audio company I know of that has dealings with China says the same two things: it's a sleeping giant, promising untold wealth, and it's a cheap place to have components mounted in a chassis. Companies over here are more or less divided into those who prize their own manufacturing skills as a point of (a) quality control and (b) honour; and those who see the obvious commercial advantages of cheap labour.

AS A RESULT, the question of political correctness - whether exploiting developing countries is OK or not - is inextricably bound up with the question of professional standards. If you're a Rolls Royce company, you can decry both the inequality of Asian suppliers and the influx of undercutting imports that they generate. If you're a Kwik Save company, you can defend value for money here and the creation of jobs there.

MEMBERSHIP OF THE WTO will continue and speed up the process begun by those pro audio companies currently blazing a trail along the Great Wall of China, wherein native industries are squeezed out. But will it stop piracy? If piracy exists as a result of economic imbalance, unchecked global trading is unlikely to help. If it exists because trade barriers have hitherto restricted access to Western goods, things may improve. Either way, don't forget to shop early for Ramadan.

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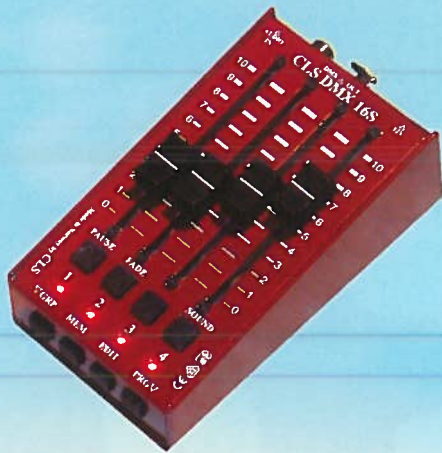
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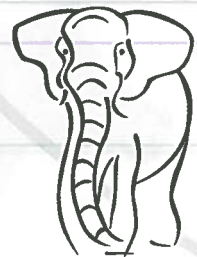
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Tony Gottelier
*assesses PLASA's and
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As an industry we stand accused of making strategic decisions based almost entirely on gut feelings that emanate solely from our own experiences of the market in which we operate. We do not stop to consider that our prejudices get in the way, or even that something we may see as a technical advance that will improve life for others in the game, may not actually be what they want at all for some unanticipated aesthetic reason or other. So how to reduce the risk of making an expensive mistake? The answer is Market Research.

Of course, part of market research is listening to your customers, though even that was considered revolutionary for some just a few years ago, and it can be misleading too unless you get a real consensus. Today, this is often achieved more viably with the notorious 'Focus Group' where a panel of customers and/or designers are collected together in the same room for a kind of brainstorming session. There is a danger in this approach too: how much information can you release to such a group before it becomes sensitive and you risk word getting out to your competitors? I suspect that many companies don't use this approach for just that reason. We are a pretty predatory lot when it comes to other people's ideas, and manufacturers are understandably wary of such risks.

All this is pretty obvious stuff, and may help us to bring a successful product to market, or to make an existing product more sellable. What it doesn't do is tell us anything about what the market is, how big it is, or where it is both geographically and within its product segments. I have been asked on numerous occasions what the value of the global market for entertainment technology is and how it breaks down? My answer was always the same: "I haven't a clue!" No more.

All that has changed thanks to a PLASA initiative entitled 'Establishing a Baseline'. Based on a confidential questionnaire circulated to their members during 2000/1, and an on-the-spot survey of customers visiting the Association's London exhibition in the same period, PLASA can now offer their members a considerable amount of market data and information. Conducted by independent market research specialists Business Diagnostics and BMRB International, a major amount of desk research was also carried out, both as a control and for additional information such as financial data. For the AV market, key information was obtained from AV magazine.

At this juncture, it is important to bear in mind that this survey was conducted prior to the events of 11 September last year and therefore any commercial fall-out that may have occurred as a result cannot be



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reflected in the forecast data. Nevertheless, the information should prove very useful historically, as it is the closest thing that we have to the reality up to that point. It also reflects how much expansion was anticipated in the current period. The second survey will, of course, be conducted post-11 September, and therefore data on expected changes over the coming year will take into account the effect of that day.

We should also establish some terms of reference: When we talk about Entertainment Technology or The Professional Entertainment Technology Industry, it excludes all forms of 'Ride and Simulator Technology' and 'Movie Presentation or Broadcast Equipment', whether associated with rides and theme parks or not. Though both are entertainment technology, the survey is only interested in pro audio, lighting, video and staging (entertainment technology) within the context of staged and music-related events and where theme parks and rides use this equipment as part of their package. In other words, only the typical products of the PLASA membership and the markets in which they typically sell, which happens to include the themed entertainment area and, of course, the architectural market. The research also includes areas outside of the strictly 'entertainment' sphere, such as PA systems.

The size of the markets are defined in the same context - that is, based on total sales of entertainment technology to each of the sectors. For example, if you want to know the total size of the market for architectural lighting, this survey will not answer that question, but it will tell you its estimated value specifically for the sales of pro entertainment lighting.

One other thing, though I shall try to avoid it: if I use the word 'Marketing' in this article, I mean it in the sense of a collective noun for Market Research and Strategic Market Planning.

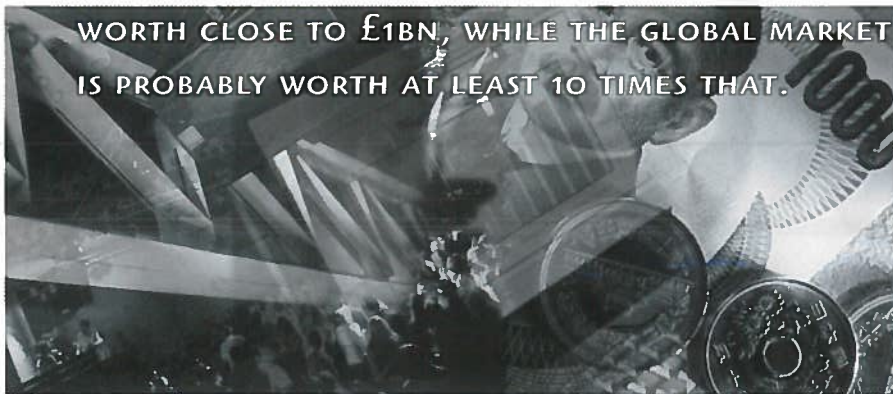
So all that aside, what did the survey establish?

First, that the UK market for our products and services is estimated to be worth close to £1bn, while the global market is probably worth at least 10 times that. In the UK, this breaks down as: lighting £225m, audio £335m, audio-visual £315m and staging £50m. This apparently resulted from growth over the previous two years of 14% per annum. Further expansion of 12% was anticipated for the current year, but that number would



SO ALL THAT ASIDE, WHAT DID THE SURVEY ESTABLISH? FIRST, THAT THE UK MARKET FOR OUR PRODUCTS AND SERVICES IS ESTIMATED TO BE

WORTH CLOSE TO £1BN, WHILE THE GLOBAL MARKET IS PROBABLY WORTH AT LEAST 10 TIMES THAT.



certainly require adjustment for the 9.11 factor. There are a number of eye-opening stats in the report, one of which is, heavily influenced by AV sales, that the architectural sector represents 23% of the total in the UK.

PLASA is asking members to pay £125 per equipment category for this research report, which also includes issues of training and staff skills. This seems to me to be a very small price to pay to find out where you stand in the market and to enable manufacturers to better plan for the future. As they say, the devil is in the detail, and there is a great deal of useful detail specific to each professional segment in these results. Who knows, it might also be helpful with the bank manager, or potential financial partners, who may be having some difficulty in taking the market seriously otherwise.

PLASA's managing director, Matthew Griffiths, says, "This is the very first piece of serious research that has been carried out in our industry and, though it won't be the last, it will establish some essential yardsticks from which members can assess their current and future positioning, and plan their strategies accordingly."

Hard on the heels of the PLASA market reports, ESTA, the Entertainment Services and Technology Association of North America, has been working on complementary research

among their members, though they have adopted a somewhat different approach. Firstly, ESTA have focused entirely on lighting and special effects, dividing that again into some eight main categories, with even tighter sub-sections. These main categories for lighting are: Moving Lights, Fixed Luminaires, Followspots, Lamps, Dimmers and Control, including Networking (Gobos are being added for 2002). Atmospheric effects are: Fog and Haze machines. New categories will be included as requested, provided there are enough participants. Geographically, the world will be divided into the United States, North/Central America, South America, Europe, Middle East and Africa, Asia/Pacific Rim. The research began in 2001 and participants have already received three quarterly reports.

The programme includes only manufacturers, but any manufacturer around the world can participate. Those that do are being asked to sign up for a two-year programme, the annual cost of which is far from prohibitive and varies according to the number of employees for each applicant. If you are a member of ESTA or any of the participating associations, of which there are six across the globe, you get an even better deal. There has to be a minimum of three participating companies in each sector and they have to commit to delivering quarterly sales data against each of the

participating products that they manufacture. These anonymous quarterly returns go to an independent accountancy firm outside the US which undertakes not to reveal any of the information to any outside party and to destroy all data within 120 days. Each participant is also required to sign a non-disclosure agreement. Close to 50 companies, many of them the biggest names in the business, signed up for the initial survey which began in 2001.

What happens then is that the quarterly data is compiled by the independent accountants, who undertake to deliver their completed report on growth and trends in each sector within 60 days. The results will help participating companies to track market share, compare trends and identify sales patterns, both by product segment and geographically. To establish a benchmark for historical comparison, the original participants have provided parallel statistics for the previous three years, stated annually.

ESTA publish a very useful pamphlet to encourage participation called 'How to use Market Research' by Frost and Sullivan, one of the world's leading market consultancies. If you have any doubts about the value of such research, you should get your hands on a copy. It makes the point that unless a company knows where it stands vis-à-vis its market, it will find it very difficult to grow in a planned fashion. It identifies that the strategies that result can be both customer and competitor-oriented, but further that they can be product-oriented as well.

The latter is the issue of developing product that you know fulfils a genuine need, and not just a desire, amongst potential users. It's the old marketing maxim about giving the customer tea cups with two handles, if that is what they need. In those circumstances, if you continue to make conventional crockery, you will quickly go out of business. The role of monitoring market trends is absolutely vital in this context. Things can change remarkably quickly in this marketplace and who wants to get stuck with product and outstanding production that nobody wants? It can happen, because in some areas of this business we are highly fashion conscious. I commend this ESTA-sponsored programme to you all, as access is limited only to participating companies - even ESTA's executive director Lori Rubinstein doesn't see the reports!

I asked Mike Wood, President of ESTA, to sum up. "We consider this research to be very important for all concerned and we know, that at the very least, the results will challenge some previously held assumptions."

The second round of the PLASA Industry Survey is now about to commence. If you want to know more about either set of research or are interested in becoming a member of PLASA or ESTA, contact us now on +44 1323 410335.

HH

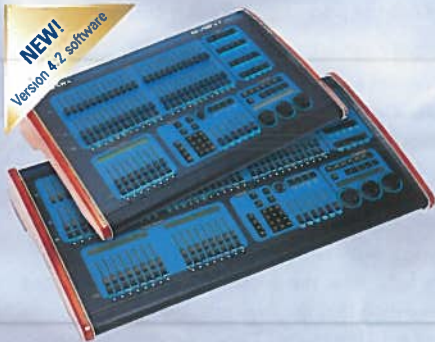
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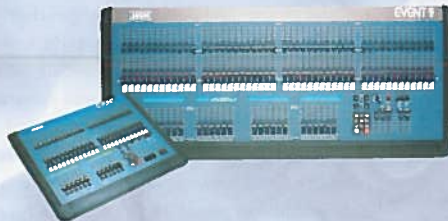
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If you're looking for a compact, full-featured lighting console - one especially designed to control both conventional and automated lighting fixtures, then don't look past the Event 4.

The Event 4 is a hybrid console, featuring all the familiar characteristics of a 2 preset memory board along with an Effects Processor and Fan Function. This easy to use and highly flexible console now comes with version 4.2 software

Event 3

Event and Event Plus offer all the simplicity and features of the ESP II with additional programming and playback options. Event is a hybrid, designed to give maximum hands-on flexibility, but with sufficient features to control moving lights and colour changers with all the sophistication of most dedicated moving light consoles.

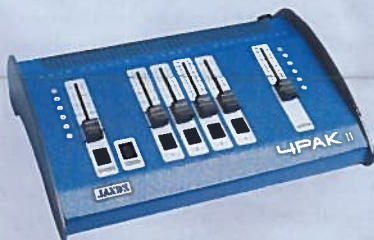


ESP II

The ESP II successfully combines power with simplicity. One button recording and editing of scenes, chases, stacks and crossfades make the ESP II an ideal choice for the demanding requirements of live shows.

Stage 12/24

Stage is a range of DMX consoles with 2 preset and flash manual operation, which can also be used in Wide-Mode to double the number of available channels. In addition Stage has 2 Hold memories and a chase facility.



4PAK II

The 4PAK II integrates the functions of both a control desk and four dimmers into a single economical unit. The 4PAK II is suitable for stage lighting in schools, for bands, theatre groups and for effects switching in mobile applications. The 4PAK II is rated for a maximum total load of 2400W which can be spread across the four channels or contained on a single channel.

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John Watt

Second Take...

John Watt's view from beside the camera

Well, it was all there during the festive season if you looked closely enough at the Radio Times. It's tough, I know, as it contains nearly everything but TV information, but for the dedicated sleuth there were unexpected gems to be found amongst the usual dross.

I AM AN ARDENT Parky fan. On a good night it can drift towards old-fashioned pure showbiz, which is what TV used to be about before it became a sport and news service punctuated with soaps (and you know what it's like if you get too much soap in your eyes). However, the pre-Christmas edition of Parkinson provided a lesson in the hazards of lighting which, Excet-like, came over the horizon and landed on target before dear old Mark Kenyon knew what had hit him. Geri Halliwell was guesting and kicked off with one of her excruciating dirges. OK, hands up, it's

"Not content with a supporting role, they proceed to upstage 'the turn' by moving. I promise you, Des and a moving light danced together in a two-shot without either feeling as embarrassed as I was."

not my thing, but as often happens there was a light side.

I THOUGHT AT FIRST, it being the pantomime season, that she was wearing one of those animal masks with a mouth, nose and whiskers, and then a hard line where the face takes over from the cardboard. Her cheeks were painted in hard blobs of colour which distorted her features interestingly, and I guess some pigment in her make up just happened to take off in one of Mark's favourite 'warm' keys. Hard luck really - I'll bet they didn't get a rehearsal.

ONCE IN THE HOT SEAT with Parky she looked OK. Later, Robbie Williams failed spectacularly to swing through a number that the real star, Laurie Holloway, combined with what sounded like a Nelson Riddle arrangement, couldn't get off the floor and make this man appear fit to occupy the world of Sinatra and Bennett.

BUT I'M GOING TO BE all sweetness and light during this year of our Lords, Greg Dyke, Murdoch, et al - so what was good? Well, quite the best light entertainment show was an old 'Evening With Bruce Forsyth' which just steamed along and reminded us how good it can be. Pictures, music, set, all faultless and the lighting much, much better than that. Lots of gorgeous tasteful colour and pattern, changes that worked and were seen to do so (three quarters of all lighting changes are timed to coincide with a mid-shot or on a cut, but not here) and ne'er a moving light, or any other for that matter, in shot. Bruce was as talented as ever: I never doubted his ability from the first I knew of him in Showtime at Babbacombe in about 1952... a pity he doesn't feel the same about me. So, Mike Lingard, a tour de force, whatever that means - it was stunning. Yes, I've already got the pen.

CLOSE, VERY CLOSE, was an 'Evening with Des', this time lit by Brian Pearce up on a cheap-day ticket from Torquay. His previous credits would fill a telephone book-sized volume and this catalogue of experience shows through every time. Mind you, even his impeccable talents couldn't lift the Royal Variety out of the depths to which it descended in November, when it started on an all-time low with Julian Clary's squirm-making gutter routine, with what followed not much better.

BACK TO DES, who sang, danced and joked throughout, accompanied by, I think, Colin Monk MD and Brian Pearce LD - a formidable combination. I suppose if there were words to describe quality of light it would lose a little of its mystery, but it turns into an almost solid substance under Brian's hand whilst remaining completely translucent. I'm not sure what it's about but I

suspect that energy and cost savings are not high on his list of priorities... I call it pure wallop.

SO WHY DID HE GET SILVER and not gold? Well he's uncovered a rare thing in me, a character fault, a little niggle I have that is growing, almost imperceptibly and which I can't get out of my mind. Moving lights in all their myriad forms have revolutionised lighting. Their multi-functional abilities are the answer to all our prayers and beyond. But - and it's a big but - they are ugly, very ugly. Why, then, has it become the accepted convention that the damn things can share any stage with the talent? They'll get their names above the title next! Not content with a supporting role, they proceed to upstage 'the turn' by moving. I promise you, Des and a moving light danced together in a two-shot without either feeling as embarrassed as I was. The usual gaggle of nodding donkeys resided upstage too - they don't look nice, even if the music industry does regard them as phallic symbols. That said, Des's show was pure top-notch entertainment with not inconsiderable back-up from the lighting.

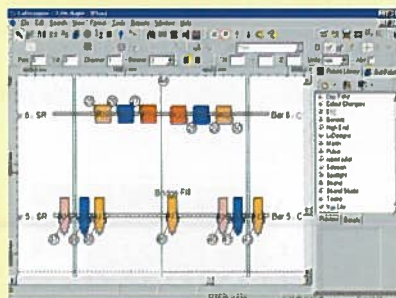
I CAN ONLY HOPE that I wasn't the only one watching *The Car Man* on Channel 4 just before Christmas. I guess we must be eternally grateful that someone schedules this sort of stuff which is bound to be for a minority audience. This was a modern ballet accompanied by the exciting Bizet Carmen score, set largely in a 1930s American car repair shop, though the set adapted itself as required, as it would in a theatre, and which worked just as well on the small screen. Lit by John Burgess with considerable discipline and style, an amazing range of emotions and locations followed one another in a text-book display of lighting versatility: the dancing was pretty good too! JB will never be drawn on his working methods so I can only guess. It was staged at Pinewood and no doubt had, by modern standards, an indulgent budget and schedule. If I'm right, then both were wisely spent. We were transported deftly from shower to café to garage to moving cars with as sure a touch as we were taken from tender love to unabandoned sex to murder. A limited palette spoke volumes and the old principle of using one lamp where one lamp was enough, is OK by me. The prison set made the cliché of radiating bars from a single backlight work as never before. The car sequence had an enormous sense of movement and the thrill of speed created entirely by clever cutting. Who needs the so-called 'real thing'?

IT'S TOO LATE FOR New Year resolutions, mostly long since forgotten anyway. I've promised the editor to bring a more forthright and cutting edge to these pieces. No more beating about the bush, or any other former places of entertainment, just the plain truth pure and simple, with never a good story being ruined by a few facts. '2002' is a palindrome which, like my plots and this column, read just as well backwards as forwards. Have a good one.

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AES NEW YORK

Phil Ward identifies some of the key product launches at the December AES Show in New York

New York at the beginning of December is a sentimental place. Horse-drawn carriages trot fur-coated shoppers along 59th Street at Central Park South. Sesame Street's Big Bird switches on the Christmas tree lights outside the Lincoln Centre. Tourists flock to Ground Zero. And AES delegates - at least the Americans - exhibit, buy, sell and discuss in detail 'classic' audio technology.

One whole section of this show was dedicated to 'When Vinyl Ruled', and offered tear-jerking insights into valve and lathe technology. Even away from this grotto, microphone and signal processor designs from the 1950s were on display, re-issued and repackaged with loving attention to detail.

Les Paul himself, who pioneered multitrack recording in the 1950s, figured in Gibson Laboratory's activities, adding to the general air of reassuring heritage. Such was the mood of the exhibition, the city and, it seemed, the country as a whole, a few false white beards would not have been incongruous at the Jacob K Javits Convention Centre.

Progress continued, though. The biggest sound reinforcement technology announcement was Nexo's GEO, a new generation holding three patents. On display were the S805 and S830, both full-range compacts for horizontal or line array; and a supercardioid subwoofer, CD12.

Introducing Nexo's Hyperboloid Reflective Wavesource (HRW), GEO guides the wave using an acoustic mirror rather than the walls of the cabinet, creating a 'virtual' source behind the enclosure. Although the company claims that these GEO models are the

smallest and lightest vertical array cabinets currently available (at 11kg and 25cmx40.6cmx21.9cm, they are about the same dimensions as the PS-8), line array is not the holy grail according to international sales director Mick Anderson. "We're not just joining in a product fad that has got the industry very excited recently," he said. "We're rolling out significant new technology, and it will both fill gaps in the market and provide benefits for existing applications."

Nexo recently went part-public while retaining majority control, and Anderson reflected on the changes. "You can only float once you've achieved a certain level of continuous business and profitability - and Nexo is a cash-rich company," he said. "We've done it to expand. If you have further plans - like opening offices in different countries, new technology - it gets very expensive, so it makes sense to take advantage of your own success."

"You realise your assets at the appropriate time, and we'd reached that time. We're still in control of the company - we only liberated 15% of it for valuation, of which only 5% is actually public."

The company also announced new marketing plans for the Middle East and Central and Eastern Europe, in the shape of a new deal with Francis Williams's World Marketing Associates. Williams put his new - post-EAW - line-up into context.

"If you look at the brands we have, none of them competes directly," he said. "It's true



Above, delegates arriving at the Jacob K Javits Convention Centre

Left, pictured from left to right, AES past president Roy Pritts, AES executive director Roger Furness, convention chairman Bill Allen and AES deputy director & exhibits manager Chris Plunkett

there are one or two crossover areas - Peavey and Nexo both make speakers - but no one can say they're competing brands. We have a de facto NDA with everyone, anyway. Also the further away you go from the UK/US axis, the less sensitive an issue it is. Even in Western Europe, you get big agencies or distributors handling more than one name in each product sector. Liaising with people like that is what we specialise in - taking a lot of brands from zero to something, in difficult territories."

According to Williams, it was at his behest that the relationship between WMA and EAW came to an end, and not an edict from the centralising forces at Mackie - although the departure of EAW from the HW International stable had been a factor. "The opportunity with Nexo was coincidental," he said.

Nexo US's executive VP of sales Jim Sides, meanwhile, was celebrating in a wider context. "We love you Brits! When the tragedy happened in New York, I got e-mails from all over the globe," he said. "But the most concise, kindest message I got was from my colleague, Mick Anderson. It was heartwarming for all of us. And we'd elect Tony Blair for President any time . . ."

Sides has been busy introducing French technology to a market laden with powerful native brands. "The competition is keen," he admitted, "but Nexo is fresh. A lot of companies in the US have sales and marketing baggage that they carry around with them. We sell products from Alaska to the Mojave Desert, and our technical failure rate is very low despite those differentials. The technology is rock solid."

It's unlikely that Harman has ever been seen in public with such a small exhibition area. Dubbed 'Harman Lite' by one wag, the booths of JBL, Crown, DBX and the 'European Electronics Group' - Amek, Soundcraft, BSS and Studer - formed a small corridor, down which delegates were wedged continuously.



mid/high (PD700) coaxial loudspeakers featuring neodymium differential drivers for mids and neodymium compression drivers for highs. According to JBL, the compact assembly of the magnet, diaphragm and

voice-coil allows them to be placed coaxially with the mid-horn, thereby minimising diffraction problems.



Above, the JBL, dbx, Soundcraft press reception in full swing left, a Nexo GEO array; below, the Sennheiser SKP 30

It being Harman, the aesthetic impact of this was similar to that of a bonsai tree: all the right branches, but in miniature.

Explanation of products was therefore often matched by an account of how the scale of the sales area had been arrived at. "We very nearly didn't attend at all," was a frequent insight.

Nonetheless, JBL showcased the new Precision Directivity (PD) line for fixed installation, a series of

PD100 is an LF range in which the components face inwards symmetrically, with DSP-controlled transducer pairs offering accurate beam-steering and up to 20dB rear-rejection.

"The industry seems to have turned out in force in the face of economic downturn," observed JBL's Mark Gander, going on to highlight three technical papers presented by JBL on line array - Vertec being the company's particular solution. According to Gander, a popular trend in the US at the moment is the use of nearfield studio monitors - specifically JBL's LSR28Ps - mounted on the FOH console. Both Tom 'T-Bone' Edmonds, touring with Lenny Kravitz, and Monty Lee Wilkes, out with Britney Spears, are adopting this method of soloing and submix monitoring during soundcheck. "Having compatible nearfields is affecting Vertec purchasing decisions," claimed Gander.

You almost got the impression that it was possible at this show to do as much business walking the aisles as visiting booths. Tim Chapman and Mark Johnson of Meyer Sound, Marcel Vantuyn and Ed Wijnker of Stage Accompany, Terry Holton of Yamaha, Alan Wick of Turbosound . . . all could be seen busily engaged in discussion with clients and colleagues. But all had opted, on this occasion, to be visitors rather than exhibitors.

Vantuyn, president of Stage Accompany USA and an ex-pat Dutchman with an accent that now combines MTV Europe VJ with Woody Allen, described an economy on the verge of rebound. "In cinema," he said, "all the major chains have filed for Chapter 11 - which is bankruptcy, not liquidation. I expect that market to pick up significantly for Stage Accompany some time in 2002 or 2003 - contrary to the European cinema market, which is really booming now.

"The building boom in US cinema started about 10 years ago," he added. "At that time there were about 22,000 screens in the US, which doubled to 44,000 by a couple of years ago. Some of the megaplexes were enormous - 20- and 30-screen theatres - but there really isn't a market for a theatre with 30 screens. That's more screens than people need, and I think the industry recognises that now.

"Having overbuilt, the industry will downsize. United Artists, for example, went into court \$750 million in debt. When they came out - Chapter 11 - the court had wiped out \$500 million of that. That's half a billion, written off. In the US, if it's agreed that it's better for the creditors as a whole to lose what they're owed but keep the client, that's what happens. Bankruptcy is very attractive in America." Vantuyn added that the church market was, as ever, very strong in the US, and that new products just around the corner from Stage Accompany should help the company do "much better still in the touring market."



Other products of note included Sennheiser's SKP-30, a means of transforming wired microphones into wireless ones with a simple plug-on adaptor; and theatre control software for the Midas Heritage range of consoles.

Midas's Legend console, trailered in Amsterdam, was given the full launch treatment in New York including the now familiar daily draw for a free motorized scooter. The draw was either unpopular or fixed, or an incredible coincidence took place, because at the end of the third day I clearly saw Midas executives Bob Doyle and David Webster, together with PR agent Kiera Leeming, attempting to leave the Javits Centre on motorised scooters. Then again, Christmas does come early in New York.

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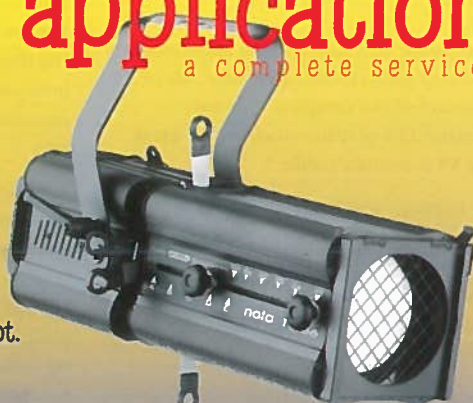
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The echoes of September 11th continue to rebound throughout the industry. One only had to attend a couple of Christmas parties to discover just how many companies had been forced to 're-organise' in the aftermath. To add to this, a pervasive feeling that the 'cupboard is bare' seems to be settling overhead like a black cloud.

WHILE the rental houses can see no relief to the subsistence rental rates that they are subjected to today, and indeed had been for some considerable time prior to 9.11, a more recent concern is a dearth of new and lasting talent and material arriving on the entertainment scene - the acts, the music, the shows - that will fuel a future revival. It may be indicative of this malaise when a leading music label is prepared to buy out a recording contract, albeit for USD50m, just so they don't have to

"A more recent concern is a dearth of new and lasting talent and material arriving on the entertainment scene - the acts, the music, the shows - that will fuel a future revival."

carry the potential cost of failure of successive albums. If such long-term investments are to be a thing of the past, we may all be forced to rethink the financial assumptions on which we have been operating.

HAVING SAID THAT, West End theatre has reported a surprisingly rubber-like response to the general impact on tourism by reporting that in the last week of November, revenues were only 2.8 percent down on a 0.4 percent drop in attendances on a year-on-year basis. So, does it matter that much of this revenue is derived from musical revivals and rehashing old songs?

WHILE WE ALL WISH and hope for a revival by mid 2002, by which time it is hoped that everyone will have recovered their collective nerve, if there is something more endemic beneath the surface of our own version of the recession, it may not be quite as simple as that. There could be more trouble ahead.

I WAS CURIOUS to know what was behind the announcement that Kristian Kolding, CEO of the Martin Group, had also assumed the mantle of international sales director. So I went to the horse's mouth, and a charming little story emerged.

PIO NAHUM, who up to now has carried the triple responsibilities of the management of international sales and of marketing combined with being CEO of Martin Italy, has long wrestled with family pressure about the amount of time away from home that the sales side of his job entails. Now the pressure has become extreme because Pio is to be a father again at the ripe old age of 49. The logic is that Nahum will be able to maintain his existing international marketing role in combination with the Italian management, together with his duties as a new parent - a lot less travelling but no fewer sleepless nights!

IN ANOTHER LIFE I was once foolish enough to swap a bunch of lights for a share in a nightclub, possibly the most notorious club of its generation. However, the Embassy Club had already had a prior existence when it was patronised by the great and the good between the wars, even playing host to Edward and Mrs Simpson. So, when it came to our turn to relaunch the venue as a hotspot that bridged the gap between the straight and gay scenes, under the late, effervescent and sadly missed Steven Hayter, we were still harking back to those earlier glory days from some 50 years before in our publicity.

HOW TIMES HAVE CHANGED. The publicity attached to the latest reincarnation at what I assume must be a new site, for the original is no more, was all about retro chic, and included the following quote: "Embassy is named after the infamous club which in the Eighties rivalled New York's Studio 54 for sheer indulgence and wild decadence." It just shows what an ephemeral world we now live in when you can make 'history' in just 20 of your man-years.

ASIDE FROM ETC'S BASH in the crypt of St Martin-in-the-Fields, not a bit like letting the money-lenders into the temple (I don't think), the Christmas party to be at was Mark Jonathan's Christmas Lighting Lunch at the National Theatre. The high point of the afternoon, for so convivial was it that midday would not suffice, was Marko's rumbustious and uproarious speech describing the dire consequences which befell individual revellers following last year's bash. I won't go into lurid detail to spare the blushes of the individuals concerned.

HOWEVER, there was also a more serious intent to the festivities at the National in that three lighting bursaries, sponsored by ETC, White Light and the estate of the late Michael Northen MBE, and presented under the auspices of the ALD, were given to students from Rose Bruford who also attended the lunch. Sven Ortel, Suzy Hallam and Richard White stand up please. A cash collection was also made for Light Relief.

SUBSEQUENTLY, your correspondent slunk away fairly early in an attempt to confound those who believe that journos are always in the thick of it when there's booze around. Consequently, I witnessed no undue excesses and the temptation to tittle-tattle was removed. Thus everyone can relax, their reputation remains intact.

IT WAS GOOD TO BUMP INTO WILLIE

WILLIAMS at the above event, who was in mid switch from on-the-road lighting creator for bands such as U2 and Bryan Adams, to theatre-based lighting designer via Ben Elton's new musical based on the songs of Queen. This revelation elucidated a tart comment from Rick Fisher who wanted to know why he didn't get offers in the other direction?

MIND YOU WILLIE has made the switch with no loss of rock 'n' roll pedigree, after all that's what the show is all about, and the team also includes Mark Fisher who is not exactly a stranger to the genre either. Before someone else says it, I should acknowledge that, like *Mamma Mia*, this musical will of course be old songs revisited. However, if it's as successful with audiences . . .

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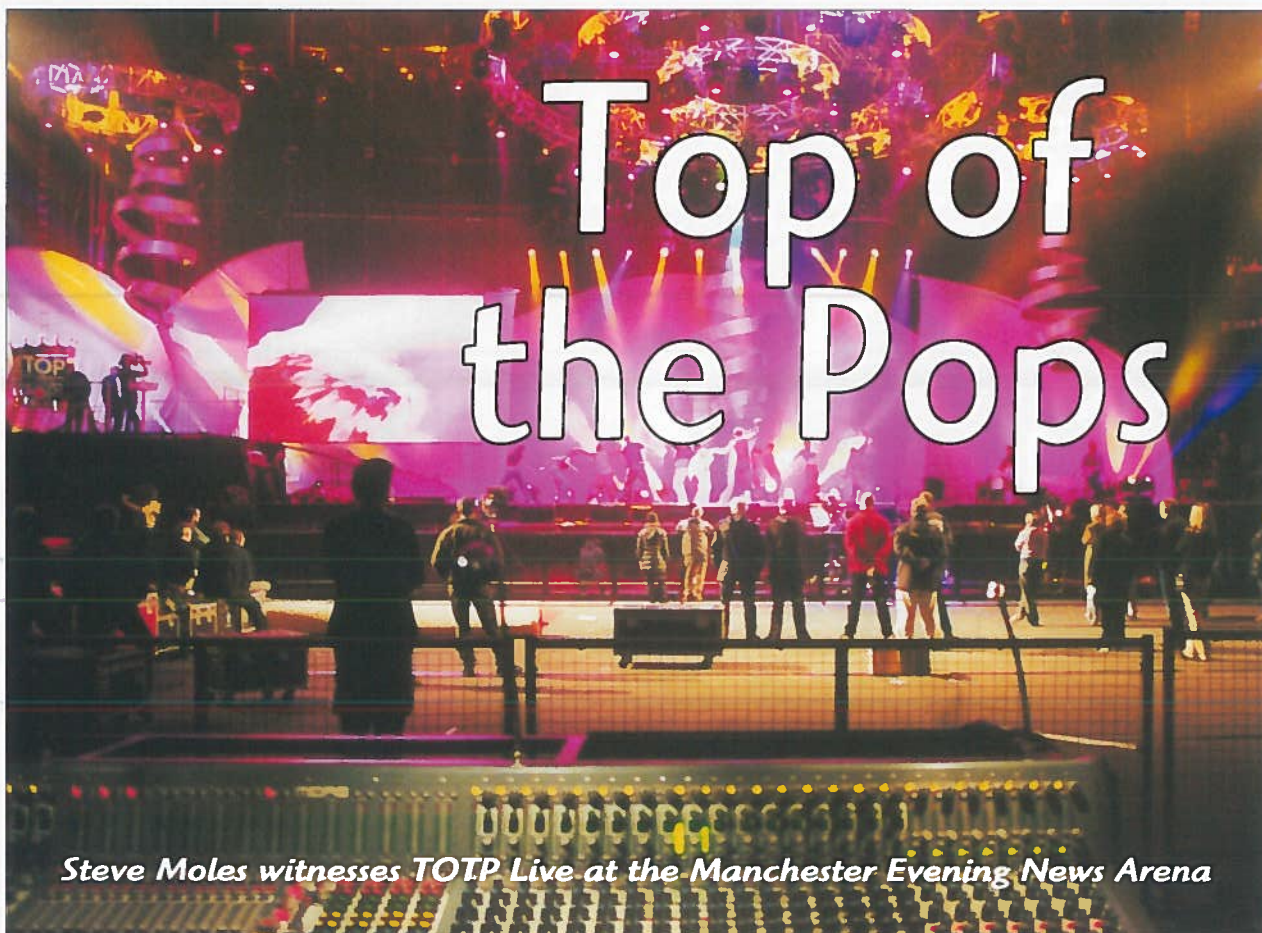
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Steve Moles witnesses TOTP Live at the Manchester Evening News Arena

As that scourge of English orchestras, Sir Thomas Beecham, once famously noted, "The English may not like music, but they absolutely love the noise it makes." So it proved at the Manchester Evening News Arena on the last day in November, the ample confines of Britain's largest indoor venue being tightly packed by those who don't so much appreciate music, as adore its musicians.

The portents for this fledgling award show are very good indeed; curmudgeons will say that the BBC deciding not to renew its contract with Smash Hits last year, and then five months later announcing the Top of the Pops Awards, was a cynical manoeuvre of corporate 'let's have it all' mentality. But one look at the line-up for this year's show blows that argument straight out of the water: this is a full-spectrum pop show, much like its weekly parent programme, and far removed from the acutely sub-teeny agonies of Smash Hits. So, with branding like the Beeb behind it, and their undoubted ability to pull off a class presentation, how can they lose? Well actually, there was one weak area, but being a first dip of the toe, I think we can forgive them. Besides, if they're smart, this could easily become a 'Euro Event' such is the strength of the TOTP brand.

SET AND LIGHTING

From front-of-house, Tom Kenny's lights made much of what was an enormous stage, but somehow there was something lacking. Two acts confirmed it in my mind: So Solid Crew danced around in a vacuum (possibly why they leapt manfully into the pit) and Jennifer Lopez treated us all to a hot Spanish courtyard replete with cooling fountains, a million miles away from rainy Manchester.

Now Lopez has received a great deal of flak from the Press for her reputed egotistical extravaganzas, but on this occasion she was absolutely right to stamp her strong, perfectly-formed, dance-trained foot and insist on having her own set on stage. The PA was close to perfect, the lighting was mighty, the cameras were there in cohorts, but set designer Cath Pater was apparently under-funded.

Despite not being able to talk to her directly, this is the only logical conclusion. Why, only two weeks earlier she had done similarly for the European Music Awards on MTV and treated the assembled cameras to a lens-full of colour, shape and target, wherever they probed. In contrast, three giant hankies across the back of the MEN didn't do it. With the potential for this show to grow and grow, can this woman's imagination be granted more free rein in future please?

Lighting-wise, Tom Kenny, who's lit Smash Hits in previous years, has been given an altogether bigger toy box, this time allowing for a lot more lighting in the audience and a move away from a rig dominated by Pars. Some things don't change though - he still has the full complement of circular trusses from LSD Fourth Phase, "they look so good on camera," being a fair justification. But look deeper and it's soon apparent there is a lot of technology up there. "Having worked with The Who, Clapton and Plant & Page, I'm used to having some of the biggest rigs, and here I was given a pretty free hand - LSD has been just great."

His crew chief Darren Hodge proved more fiscally prudent. "We've done so many of these shows now that we know things always get overlooked - practicals needed here, a little up-light there. I always bring a whole bunch of fresnels, Pars and extra moving lights. If it's simple and easy, like a couple of floods under a rostrum, then we just do it. If they want half a dozen moving lights placing around the set, I pull out the invoice book."

Kenny is ably assisted by Mark Cunniffe, Kenny taking the classic LD's role in these circumstances - imagineer, diplomat and interpreter - while Cunniffe does what he does best, programmes an excellent show with a keen eye for the camera shot, making sure the artist is lit whatever the angle (or not, in the case of So 'Squalid').

Whilst Kenny and Cunniffe are both veterans of 'Concert meets Television', curiously this is only the second time the two men have worked together. "We did a performance with Charlotte Church from St David's in Cardiff, the first ever HDTV, back in September. Yvonne Donnelly at LSD suggested we get together," says Kenny.

One suspects it won't be their last project as two forthcoming mini-series for MTV & VH1, the re-lighting of a Broadway musical for TV, and an MTV Latino special all lie ahead. "But the main reason Mark's here is that he's the Tweenies LD, and you can't get bigger than that." It's easy to see why people like working for Kenny - he's never overawed by the job and always manages a quip to keep things in perspective.

"For looks I wanted all the elements of Smash Hits, lively lighting and lots of audience participation. They're using all the classic TOTP camera shots, lots of close-ups, and for that I've focused Source Four profiles on the presenters' podium, and lots of followspots on the stage - six Troupers flown out front, five Lycians back stage." Also in the armoury are Icons, PC Beams, MAC 500 and 600s, and Panoramas. "I use 'em all. We've even put a complete row of 'movers' across the floor at the back of the stage."

This latter was a request from director Julia Knowles: "She has a great eye for light; she reminds me of when I was working in theatre in Dublin, and you took your calls from the director. She sees the composition and consults, 'how about if we put a light here?' It's good to get the director's point of view."

Kenny has one final pertinent point on set and lighting. "The fact that bands bring their own set is fine, and it's OK if they ask for certain lighting looks. But the less experienced bands leave that request until five minutes before they walk on stage when it's simply not possible, not with any quality. It's high time we sent out requests for lighting riders with this kind of show." Production managers take note.

AUDIO

While all the hard work for lighting is at the front end programming and rigging, the sound boys start busy - dealing with the sheer logistics of multiple band shows for broadcast involving complex advance planning - and then get busier still as the 'On air' moment nears. That said, it all looked rather relaxed. "Most of the artists have elected to sing to playback," explained monitor man Simon Hardiman, "although we came expecting everyone to perform live," added Wayne 'Rabbit' Sargent (the two men comprise the Britannia Row monitor team for the show), "so it's a lot easier than it might have been."

Travis was one of two bands who did play live, and this undoubtedly proved a blessing when Paul McCartney dropped out on the evening before the show, following George Harrison's death. Travis bravely took up the challenge of poignantly filling the gap. That's of no significance to the show per se, but under the circumstances must have been a headache for production departments.

Hugh Richards and Chris Coxhead took the lead out front (Richards for music, Coxhead the presenters), a Midas XL4 each, plus H3000 for Richards so he could flip-flop between desks/bands. The now familiar face of Derrick Zieba (Mobos, Brits, EMAs) provided the crucial link between broadcast and live. "It's a new show, with a new production team," said Zieba. "But



the key members, like Julia Knowles, are all experienced and we've all worked together before." A familiar refrain from Zieba, but one not to be undervalued when sudden changes like the one mentioned above come to pass.

The house system, also provided by Brit Row, was not their familiar blue boxes, but an EV X-Line array, a PA that Richards himself had not worked with before. "Wheatus were the first band to rehearse, and to be honest I thought it sounded a bit flappy on the low end drum and acoustic guitars. But once I got the measure of the system, it all turned out very smooth, great high-end, and the flown bass is quite impressive."

I was just beginning to quiz Richards on the visibly sparse amount of fills across the front of the 20m wide stage when a strangely accented voice interjected. "They're Xi 1152/94s, really a modified Deltamax with a 90 by 40 degree rotatable horn." This knowledgeable voice hailed from Estonia, belonging to one Taidus Vallandi, brought in especially by Brit Row as consultant and systems man for the X-Line. "I helped EV design it," he explained. "I also worked on the development of the V-Dosc." Vallandi graduated from Tallinn University in Computer Systems Engineering, "but this was much more interesting," he said.

His further comments were revealing. "The V-Dosc is not really a 90° box, but a 70° and then rolls off 3dB. This is more close to a true 90° - the top box is 5° in

Facing page, rehearsals underway at the Manchester Evening News Arena for the first ever Top of the Pops Awards show

Top, Derrick Zieba - the familiar face providing the bridge between the live and broadcast audio elements of the Awards

Above left, Simon Hardiman and above right, Wayne 'Rabbit' Sargent - the two men comprise Brit Row's monitor team for the event





Left, sound engineer Chris Coxhead catches up on his reading

Below, Kylie Minogue in rehearsal



the vertical and there's 10 of them in the column. The two boxes below them are 120° spread with an 8° vertical for the more near field. Hung beneath is a conventional box with 120° by 40° coverage that reaches right to the centre of the crash barrier," Vallandi's lengthy exposition finally unearthing the reason for so few fills across front of stage. "Obviously this last speaker is not as controlled as the line array, but they do match for level in the front stage area."

Walking up the bleachers for a subjective trial (the upper nosebleeds were closed for this show) the coverage was everything Vallandi and Richards had indicated - nice high-end and no obvious gaps or surges.

Near stage I wasn't able to try, so I can't pass any comment on those conventional bottom speakers. But venturing up onto stage during rehearsals one thing was apparent - not only the typical back rejection of a line array, but also a noticeable absence of bass lobe from the flown subs. Whether it's lurking up in the air above the artists, or totally absent, who

cares? It wasn't where it could cause problems, and this from a direct radiating box.

The system is set by Vallandi using a KT9848 "then I let Chris [Coxhead] drive the system from there on in," added Richards. "He knows what he needs and I can work from that. Some engineers would bring in loads of kit to ring out the podium (presenters' position), he in contrast does almost nothing, certainly nothing to hurt me." Coxhead confirmed this, adding, "I've got Neumann KM150 and 140s running through a Neve 9098 for vocals - what more do you need?" Well, a quiet stage for a start? "Yes, I'm a fan [of the PA] already," he said, "the gain I can get before feedback is astonishing."

So it wasn't just the monitor men who were relaxed, that feeling pervaded the entire Brit Row PA team. All had their various responsibilities nailed down through a combination of system performance and seasoned technicians. The same was true with LSD's lighting crew. Although both disciplines, audio and lighting, had an element of the unexpected during the build-up, all was safely accommodated though one key factor - experience. There's simply no substitute for it.

Photos: Steve Moles

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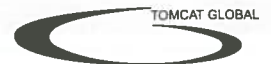
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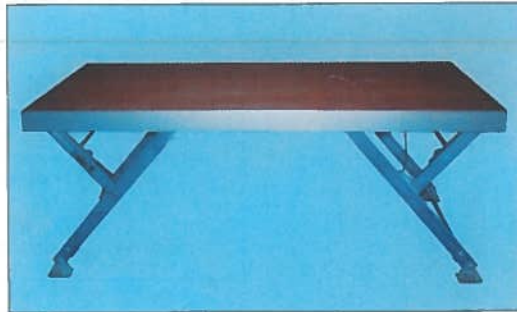
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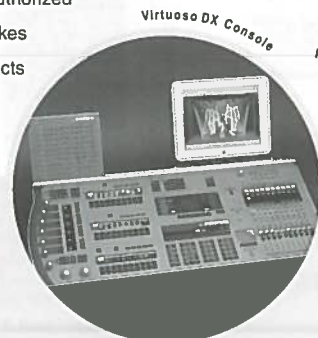
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In Profile...

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When I first got going I put ads on a few websites, not really expecting anything. Then I received an e-mail from Pedro Solarno in Lima, saying that the band wanted a producer for their second album." There followed several months of 'getting to know you' phone calls and negotiations, but eventually in July 2000 Chris Miley flew off into the unknown for five weeks at the sharp end of recording. A fairy-tale

beginning that, for all its allure, might have scared off a lesser person.

Born in Kingston-upon-Thames in January 1978, Miley and his parents decamped to South Yorkshire just 18 months later and have remained there ever since. "I had always liked music from the moment I started school, learning trombone and piano at Primary."

There were some clues to this musical leaning in Miley's family: his mother and grandmother both

played piano, and as he learnt at the recent funeral of his grandfather, his dad once played guitar. "But my family knew I was headstrong; when I decided at 13 that music was to be my chosen career, they were supportive."

Despite a mainly classical leaning in his education Miley was not immune to the seductive glamour of pop, forming his first band in his 13th year, adding bass guitar to his musical arsenal at the same time. "Guitar bands have always been my passion, that's mainly what I work with now, and one of the reasons I got the job with Cementario." But before that he had to complete his education.



"I was pointed towards Music A Level," which he passed along with Theatre, German and General Studies, "but I've since discovered there were other courses around which I wish I'd known about then." Miley is now Learning Advisor at Hull College for the BTEC in Pop Music. "It's a useful and relevant course, and a good basis for any live band work." However, he's not dismissive of the course he did take, commenting: "The classical bias of the A Level stood me in good stead; because I was an enthusiast, I was already teaching myself about harmonies and advanced theory, so by the time I decided to go on to college I was already familiar with some of the course content."

Miley applied to the then recently-opened Liverpool Institute of Performing Arts (LIPA): "I joined in LIPA's second year intake, enrolling for a Diploma in Higher Education, which I was soon able to convert to a BA in Sound Technology." (Miley, it should be noted, received an Honours pass.)

Like many students he elected to take a sabbatical after graduation: "I really wanted to move to London as soon as possible. But when I got home I received a really good reception and I quickly realised that there was nothing happening here in my line and this could be a good business opportunity."

He took a job at a local factory and began to save while he put a business plan together. "It

was the first time in three years that I'd had any disposable income so the saving took a bit longer than I'd planned, but in hindsight that wasn't such a bad thing. I'd done a business module at LIPA and essentially took the plan I'd written there and modified it. The banks did listen, and talked me through it, but it was a year before I asked for the money."

In fact the banks turned him down a couple of times: "I'd designed a higher spec' studio than I really needed, and a couple of interested people who'd offered me premises let me down."

Arguably these were useful rebuffs to his plans; Miley now has a mobile, rather than fixed, studio "more suited to local needs," and a lesser debt than he might have had around his neck.

"In the end, I secured three quarters of my funding from the Prince's Trust, the rest from the bank."

He's now coming to the end of his first year's trading, "and frankly I've been too busy even to meet up with my Prince's Trust advisor." In addition to teaching at Hull College, he also runs an annual arts festival in his home town, and is resident technician at his nearest Arts Centre in Goole, where he has mixed live sound for the likes of Gordon Giltrap, Catherine Tickel, Martin Taylor, and, not least, Pete Best.

But mainly he focuses on recording and mixing: "I also have my own PA so I do a fair bit of live mixing too, mainly local bands, one of whom is about to sign a management deal with a National player." Which naturally enough he's hoping could be a shirt tail for him to hang on to. "I'd also like to get back to playing and writing again." He's just received his first commission to write a piece for the Town's fireworks display.

Two years from graduating, by some measures he's not doing too badly. If you're interested, Miley's lucky website was 'sonicstate.com', and the album he produced, 'Cerca' was released in April of this year. ■

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