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The Business of Live TV: Thriving in a Multiplatform World



Live TV today is about more than just a big-screen experience. Mobile devices and apps offer an opportunity to deliver a second-screen experience that offers the viewer a more interactive and portable experience. Additionally, the relationship with social media (Twitter, Facebook and more) and its communities offer broadcasters the opportunity to enrich the experience and drive rating. World Cup organizer FIFA said that more than a billion fans worldwide accessed information about the tournament through its digital platforms. The month-long World Cup also was responsible for more than 3 billion interactions on Facebook and 672 million messages on Twitter. Facebook said 88 million people made a total of 280 million posts or “likes” about the final match. The most social “moment” of the tournament on Facebook, however, was right after Germany scored four goals in seven minutes during its semifinal victory against Brazil.

Starting on page 6 we describe in detail which multimedia package FIFA Host Broadcast Services (HBS) had implemented in addition to a 34-camera plan to attract a worldwide audience of one billion fans in front of LED Walls at the Fan Fests, in front of their 16:9 flat panels and 4:3 tube screens (which still are the majority in today’s world) at home and everywhere on their multimedia devices. In addition to the most advanced technical infrastructure the eight production directors and their dream teams were able to capture the magic moments in all of the 64 matches and made sure the viewers didn’t miss it on any device. And when Philipp Lahm raised the FIFA World Cup trophy in the Maracana stadium broadcasters around the world joined in celebrating an outstanding set of technical firsts provided by HBS.

Because Live Only Happens Once

Whether its live sports, live entertainment, live concerts or live politics one thing is clear: viewers are responding and driving the current boom in live TV ratings. And one other thing is certain: getting viewers to tune in and stay tuned is harder than ever as the Internet and social media continues to grow as distribution media. Live TV today is more than just a big-screen experience. Mobile devices and apps offer an opportunity to deliver a second-screen experience that delivers the viewer’s demand for an interactive and portable experience. Additionally, the relationship with social media (Twitter, Facebook and more) and its communities offer an opportunity to enrich the

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experience and drive rating. The forerunners in the entertainment sector are the Eurovision Song Contest (page 185) and the live concerts of Robbie Williams (page 104).

However also smaller live events like musicals need to attract viewers with immersive lighting, sound, and effects: Great War 14-18 (page 116), from global entertainment company Studio 100 takes place in a venue measuring 300m long by 60m wide. In addition to the scale, everything about this production is innovative – from the seating to the set, both of which move, to the use of the most cutting edge audio technology.

The State of the Studio and the Remote Production Units

Broadcasters continue to increase their presence at major live TV events and that often begins with an intense mix of flypack technologies, sophisticated remote production vehicles, or slick remote studio operations. Starting on page 31 we introduce eleven worldwide operating production companies and their offerings which are reflecting the increasing growth in complexity as more advanced lighting, display, and camera technologies change the way live shows look and feel.

Enjoy.

LIVE
Company
PORTRAITS

LIVE
Reports
EVENTS
NEWS

Reports

<i>FIFA World Cup 2014</i> LIVE from Brasil	6
<i>opticam SWITCH enhances the House of Lord's resilience</i> Parliamentary Broadcasting in the UK	59
<i>The multifunction control rooms for RTS</i>	88
<i>Robbie Williams Swings Both Ways</i> Williams' hammiest show to date complete with lashings of feather boas	104
<i>Epic scale, precision sound</i> 14-18 Spektakel Musical	116
<i>Cobalt Digital Provide the Engine Room for any Broadcast Production</i> by Chris Shaw	128
<i>Stab-C Compact</i> A striking head for many occasions	170
<i>Eurovision Song Contest 2014</i> Like a Phoenix	184

Portraits LIVE Companies

<i>AED Studios</i> Studios	31	<i>Media Pro</i> OB Vans Studios	119
<i>AMP Visual TV</i> OB Vans Studios FlyPacks Wireless	39	<i>NEP</i> OB Vans Studios LED Trucks FlyPacks	131
<i>Croatel</i> OB Vans Studios UpLink Playout	49	<i>SABC</i> OB Vans Uplink FlyPacks	149
<i>Euromedia Group</i> OB Vans Studios Specialist Cameras Wireless UpLink @-Car	61	<i>SBA</i> OB Vans Studios Media Consulting	159
<i>ISTIL</i> OB Vans Studios Art Department Rental	91	<i>tpc</i> OB Vans Studios UpLink Playout	173
<i>LIG TV</i> OB Vans Studios Wireless	107		



FIFA WORLD CUP Brasil

Every four years the FIFA World Cup showcases the skill and talent of the world's best players, but it is more than just a football tournament: It is the aspiration of FIFA TV to deliver a world class TV production.

This year all 64 matches were produced on the basis of a 34-HD camera plan with increased coverage, content and features, as well as 4K and 8K camera coverage in addition to a wide range of multi media services that complemented and enhanced the broadcast of the FIFA World Cup. It was with the help of a remarkable TV production team which consisted of over 2,000 professionals from FIFA TV, HBS, EVS, Sony, sonoVTS, Gearhouse Broadcast, deltatre, NHK and Eurovision. This team of highly skilled Live TV specialists delivered the world's most watched football tournament to all territories on planet earth including the SpaceStation in orbit.



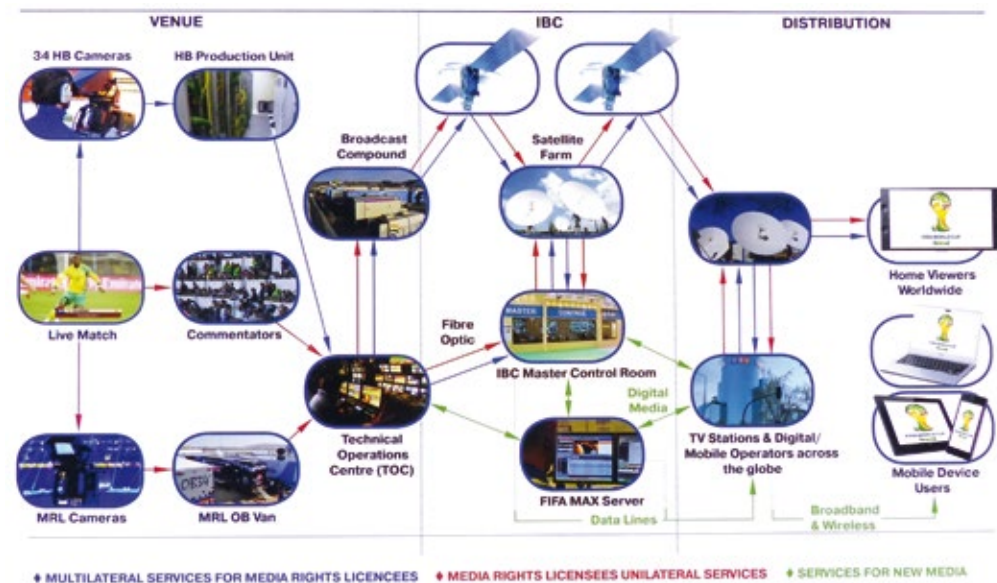


NEW
DEVELOP-
MENTS

- The standard multilateral 29-camera plan (implemented at the 2010 FIFA World Cup in South Africa) was upgraded to a 34-camera plan to include the addition of two reverse corner cameras, one tunnel camera, an aerial/helicopter camera and a cable camera at every match.
- An additional clips compilation channel (the emotion/ultra-motion channel) was added to the multi-feeds.
- The content of the multimedia feed included half-time and full-time content, as well as the live match coverage.
- The start times of the extended stadium feed (ESF), clean stadium feed (CSF) and extended basic international feed show (EBIF) were reviewed and now provided the Media Rights Licensees (MLRs) with more content.
- Additional live Match Day-1 coverage was offered to MRLs.
- A new fully edited 26-minute programme, the FIFA TV preview show, was offered to MRLs
- A new section of the FIFA TV Extranet, the broadcast information platform (BIP) was developed to better meet MRLs' need for broadcast related information during the event.
- A comprehensive multimedia content package was developed for the multimedia market around the world.
- The FIFA MAX server services were improved and extended.

43 ENG crews, one per participating team, nine across Brazil and two at the IBC. The 43 crews, operating Panasonic P2 HD camcorders, could plug in their laptops equipped with EVS Xedio Dispatcher to review shots instantly, manage rough-cut edits and log content before using one of the 38 Arkena (ex SmartJog) high-speed file injection points located across Brazil to transfer content to the International Broadcast Centre (IBC) in Rio de Janeiro.

Goal-Line Technology (GLT) – Following the successful testing of GLT at the FIFA Confederations Cup 2013 GoalControl GmbH provided the solution also for the 2014 World Cup. The GoalControl-4D system used 14 high-speed cameras around the pitch. Whether a goal has been scored was confirmed automatically within one second by a vibration and visual signal on each match official's watch. A resulting animation representing the ball's crossing the line, or failing to do so, was made available to the FIFA Match Directors for relevant use.



Production Standards

All 64 matches were covered in High Definition (HD) 16:9 format (4:3 safe). The technical standard was HD 1080/59.94i and all cameras including super slow motion (SSM) and ultra motion (UM) were HD. The audio production was in stereo and surround 5.1. The production plan took into account a number of parameters Recognizing that more and more MRLs are broadcasting in HD and Standard Definition (SD) widescreen while respecting that much of the global audience is still watching in analogue 4:3.

The matches were increasingly seen by more than just the traditional TV audience, as multimedia outlets become more and more prevalent for highlights, goal alerts and even full match streaming. Production style and coverage remained uniform and impartial, with no distinction between better-known and lesser-known teams or players. The challenges the broadcast community was facing in their unilateral planning, both on site and at home, and a production plan that best supported them.



Match Production Dream Team

The "Match Production Dream Team" concept, established at the 2002 FIFA World Cup in Korea/Japan and adopted again with great success in 2006 and 2010, has been retained for the 2014 World Cup in Brazil. A match production dream team of eight match directors, selected from the top levels of the television industry, was assembled in order to bring the most talented football directors and their crews to Brazil. All eight FIFA match directors have extensive experience working for major TV channels, operating in the multi-camera HD environment.

Thomas Sehn, Wolfgang Straub, Knut Fleischmann, Grant Philips, John Watts, François Lanaud, Jean-Jacques Amselem, Jamie Bakford

The Technical Dream Teams

As HBS' delivery partner for the 2014 FIFA World Cup tournament, Sony was responsible for the provision of all HD venue facilities in each of the 12 venues across Brazil, including systems integration, equipment and staff. This included managing the provision of 12 Equipment Room Containers (ERC) and 288 Sony full HD cameras, providing the production tools for HBS to deliver every minute of live match footage to broadcasters. Working with HBS, Sony has carefully selected its sub-contractors from a pool of leading facilities companies and equipment vendors that, when combined with HBS' production crews, were second to none. The following companies were selected and collaborate with Sony to facilitate a full HD Live Production workflow for all 64 matches: AMP VISUAL TV - RF Broadcast - CTV (Euro Media Group) - Outside Broadcast - Presteigne & Studio Berlin.

AMP VISUAL TV covered twenty matches (including a semi-final), played in the three host cities Sao Paulo, Porto Alegre and Fortaleza. AMP VISUAL TV was involved from the very first moment of the tournament, moving from the opening ceremony to the opening match in just a few seconds (with a complex equipment change). The three stadium cluster was managed by two French directors: Jean-Jacques Amselem and François Lanaud. The equipment used for each match - the same throughout the tournament - included 34 cameras and three mixers. Given the competition calendar, AMP VISUAL TV needed 50 cameras to cover its broadcasts.



ULTRAHD 12GSDI

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CONTENTS

The new Blackmagic Studio Camera. Get optical fiber, talkback, tally and massive 10" viewfinder!

The Blackmagic Studio Camera is the world's most advanced broadcast camera for live, multi camera production! It features an incredibly tough, lightweight machined magnesium design with a massive 10" viewfinder, 4 hour battery, talkback, tally indicators, phantom powered microphone ports and built in optical fiber and SDI connections. That's a fully self contained, broadcast grade, live camera solution!



Full Size HD Viewfinder

The Blackmagic Studio Camera includes the world's largest viewfinder built in! The massive 10" high resolution screen has a super wide viewing angle and extremely high brightness so you can see your images with amazing detail even in bright daylight! This professional grade viewfinder makes it easy to frame, focus, change iris settings and make subtle adjustments with full confidence even when you're live on air!



Optical Fiber and 6G-SDI Connections

Connect Blackmagic Studio Camera to your live production switcher with optical fiber cables connected to the built in fiber port or use regular 6G-SDI BNC video cables! The video connections are bi-directional and carry HD or Ultra HD video with talkback, tally, embedded audio and even camera remote control. With standard, low cost fiber optic cable, you can connect to your cameras over massive distances!



Talkback and Tally

The Blackmagic Studio Camera features built in talkback using general aviation headsets, so you get better noise cancelling and comfort at a much lower cost! You also get built-in tally lights that illuminate automatically when your camera is live so your cast and crew can easily see which cameras are on air! Talkback and tally signals are embedded in the return video connection to the camera, so you don't have to run separate cables!



Micro Four Thirds Lens Mount

The active Micro Four Thirds lens mount is compatible with an incredibly wide range of lenses and adapters. You can use your existing photo lenses for smaller setups and fixed camera use, or connect incredible broadcast ENG lenses via a B4 lens adapter. You can even use third party adapters for high end feature film PL mount lenses, so it's easy to customize your camera to suit any sized production!

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Euro Media Group: During the tournament over 120 crew members from Euro Media Group companies have supplied the television coverage of matches from Natal, Recife and Rio de Janeiro as well as aerial coverage of all 12 host cities. In total, CTV, Euro Media France, United and Videohouse have deployed more than 60 Sony cameras for the production of the international signal for 16 matches, including a quarter-final and the final. The three stadium cluster was managed by two English directors: Jamie Oakford and John Watts. DVS (Digital Video Sud) delivered ultra motion shots from 36 matches with two Super-loupe cameras at each match and ACS (Aerial Camera System) provided all aerial coverage of the tournament for HBS. The Aerial Unit's team of 23 crew and 28 pilots completed over 500 flying hours throughout the World Cup.

The other six venues were located in Belo Horizonte, Brasilia, Cuiaba, Curitiba, Manaus and Salvador and were technically served by Outside Broadcast (Belgium) and Studio Berlin (Germany)

Venue Facilities

Three key technical facilities were established at each of the 12 venues – the Broadcast Compound, the Technical Operations Centre (TOC) and the Commentary Control Room (CCR).

Broadcast Compound: MRL technical facilities were located in the venue Broadcast Compound. It was reserved for OBVans, Fly-Away kits and other technical vehicles. The compounds were located as close as possible to the Field of Play access point, studios and media tribune to keep cable runs as simple as possible.

Technical Operations Centre: The TOC, located in portable cabins in each venue's broadcast compound, was the main distribution point and interface between production facilities, MRLs and the telecommunications provider. The TOC was the main operational area for signals. It accommodated all necessary equipment (routers, patch panels, audio and video monitoring and measuring equipment) and was connected to the Equipment Room Container (ECR). Multilateral feeds received from the HBS production facility were distributed to MRLs on site and were sent to the Master Control Room (MCR) at the IBC. Unilateral VandAs to and from the IBC were also monitored and distributed from the TOC.

Commentary Control Room: The CCR was the main operations centre at the venues for all commentary services and coordination circuits. The CCR was linked to its counterpart at the IBC, the Commentary Switching Centre (CSC), and the TOC at the venue. Interconnection between the venues and the IBC was established via a digital audio matrix with protected trunk lines. Commentary switching and distribution were entirely digital. However the circuits were delivered to MRLs as analogue audio signals.



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Multi-Feed Production

The multi-feed concept of combining different packages of feeds was retained for the 2014 FIFA World Cup, giving MRLs access to both the traditional match coverage and a full range of feeds including:

- Extended Stadium Feed (ESF)
- Clean Extended Stadium Feed (CSF)
- Extended Basic International Feed (EBIF) Show – a turnkey programme produced at the IBC
- A range of multi-feeds (Permanent Highlights Feed, Tactical Feed, PlayerCam A & B Feeds, Team A & B feeds)
- Clips Compilation Channel 1 – Action
- Clips Compilation Channel 2 – Emotion/Ultra Motion
- Isolated Camera Feeds
- Multimedia Feed

Furthermore, content and services produced downstream, such as multimedia services, also benefited from this enhanced multi feed concept.

The multi-feed concept provided MRLs with extra flexibility:

- “Small” MRLs had access to coverage normally not available to them
- “Big” MRLs could focus their efforts and resources on producing additional features about the their respective national teams
- Pre-match: Much more material was available for use in the built-up to the match
- Live coverage: MRLs could enhance the ESF or tailor it to their specific audience by using supplemental feeds
- Post-match shows: MRLs could record the feeds, providing them with extensive extra coverage, including highlights, interviews, analysis and a “best of” selection of SSM and UM footage



Audio Production Plan

The television international soundtrack (TVIS) was a broadcast quality stereo television sound mix produced to accompany each match. The TVIS was a mix of at least 12 pitch microphones (providing ball sounds) and atmosphere microphones. The TVIS sound mix provided exciting and immediate coverage of the match and crowd reactions closely reflecting the picture coverage. It was mono compatible. The TVIS mix combined the sound of the crowd, stadium, anthems and ball, with incidental camera coverage, including sound from Steadicams, pitch cameras, tunnel coverage and benches. The mixed sound accurately reflected the on-screen picture content and provided viewers with the best in current television football stereo audio coverage. This mix was suitable for the majority of MRLs, who simply wanted to add their own commentary and presentation to each match.

The multi-channel international soundtrack (MCIS) was a broadcast quality 5.1 television sound mix produced to accompany the HD coverage of each match. The MCIS was a mix of at least 12 pitch microphones (providing ball sounds) and atmosphere microphones including specialist ORTF stereo and Surround arrays. The MCIS sound mix provided exciting and immediate coverage of the game and crowd reactions, closely



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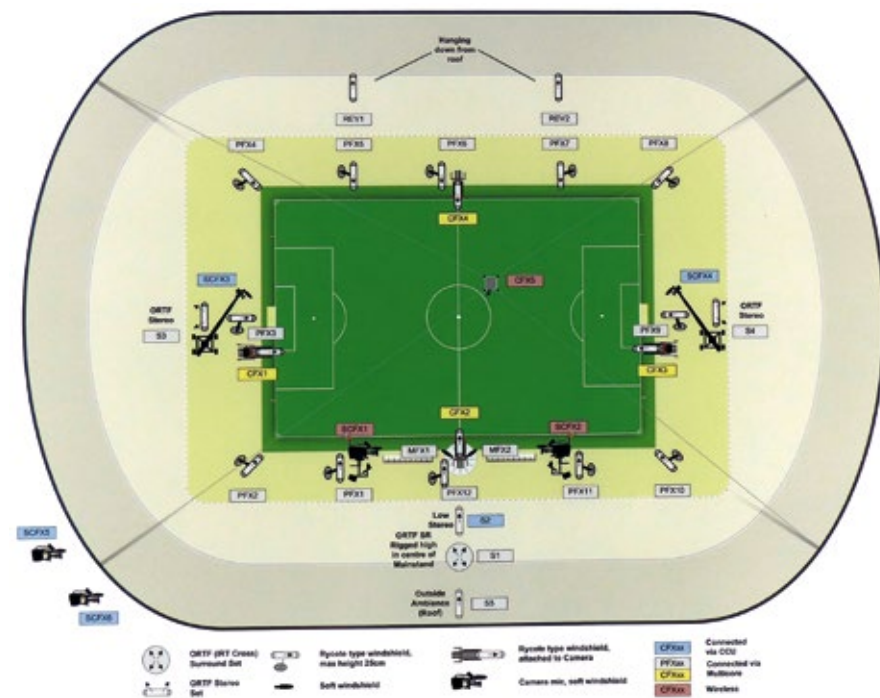
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reflecting the picture coverage, but with the added enhancement and involvement that multi-channel audio added to the coverage alongside HD pictures. The MCIS brought the viewer inside the stadium ambience. In order to provide MRLs with these specialized feeds, two controlled multi-channel mixing environments were created within the IBC, alongside the quality control room (QCR), which had multi-channel monitoring facilities. The world feed distribution (EBIF Show) carried a Dolby E-encoded version of the MCIS. At the IBC, distribution of the EBIF Show and the MCIS was also available uncoded.



Multilateral Camera Coverage

The following cameras have been added to the multilateral camera plan since the world cup in South Africa:

Reverse Corner Cameras (SSM) – Two reverse cameras were placed on the lower tier of the reverse side, approximately in line with the corner flags. These were super-slow motion cameras covering the blind side of the goal area.

Tunnel Camera – The tunnel camera gave an additional view into the players’ tunnel while the teams were lining up before entering the pitch. It did not replace the existing cameras operating in that area; however it offered an additional point of view (POV). The camera was a remote pan/tilt head, attached discreetly to the roof of the tunnel. In each of the 12 stadiums the camera was installed, maintained and operated by TV Skyline.

Ultra Motion (UM) Cameras – The UM cameras were positioned at the far side left and far side right on pitch level close to the 16m box mainly capturing close-up action of events taking place on the pitch. The direction of the cameras was different to the SSM cameras, as they did not necessarily follow the action where the ball was, focusing instead on player reactions, tackles and aesthetic images during play. The UM cameras provided stunning images of action and emotion. A frame rate of 450-500 frames was used for match coverage. The UM cameras were fully integrated into the venue EVS infrastructure and dedicated operators were able to quickly provide replay clips to the match director. Due to the length of UM replays, the use of these during match coverage was kept to a minimum. However, the new clips compilation channel “Emotion/UltraMotion” allowed for far greater use of these cameras’ output, thereby significantly boosting their value. For half of the 12 stadiums the UM cameras were supplied by Fletcher (NAC/Ikegami HiMotion MKII) while for the other half Digital Video Sud, an Euro Media Group subsidiary, supplied the Phantom based “Superloupe” to HBS.

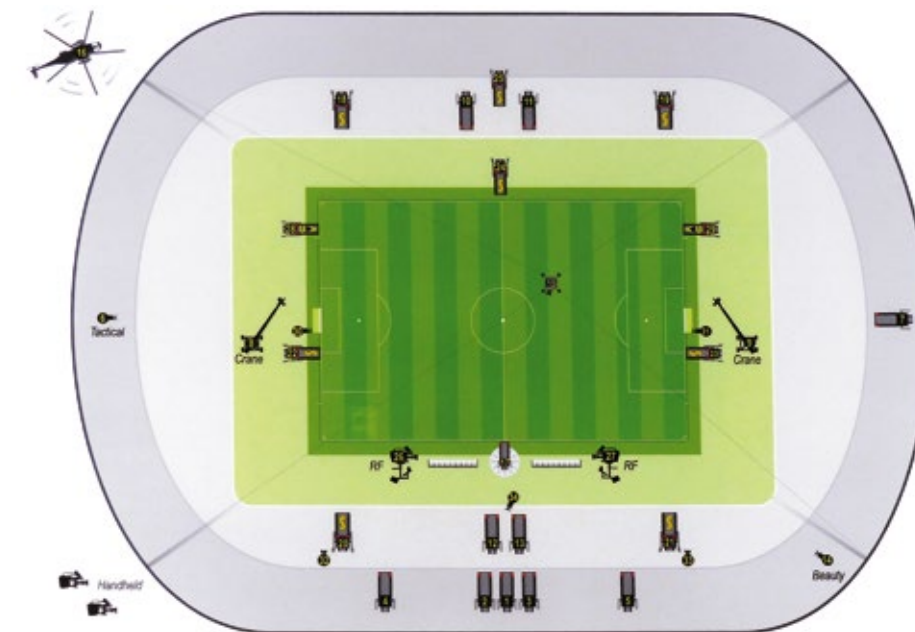
SpiderCam by PMT – Following the approval and installation of a CableCam system at each stadium, aerial coverage with Helicopter for all 64 matches was introduced. The aerial footage was focused on team bus movements from their hotel to the stadium, as well as producing stunning aerial views from the 12 host cities and surroundings during the pre-match coverage. Also the features production at the IBC benefited from these materials by adding aerial shots to selected stories when editorially relevant and increasing the value of these features.



Robotic Cameras at the FIFA World Cup Stadiums

A team of 32 technicians from TV Skyline were operating about 180 robotic cameras at the 12 FIFA World Cup stadiums in Brazil. Part of the 34-camera plan for each stadium was a tactical camera mounted on a GentleMote head very high behind the left goal, two BoxCams mounted in an elevated position in line with each goal, providing a clear view of the goal and its surroundings, two InGoal cameras positioned in the back top corner of the nets, providing a POV perspective inside of both goals, a BeautyCam providing a picturesque view from inside each stadium and finally the TunnelCam providing images of the gathering of the teams before they appear on the pitch.

In addition to these cameras TV Skyline operated between 8 and 20 ComCams for the commentary positions in each stadium. During the pre-round matches 80 ComCams were in operation and moved between the stadiums. Each MRL could book this service via HBS. The operation of the robotic cameras was quite efficient because TV Skyline was able to operate 10 or more of the commentary cameras with one person.



In Rio de Janeiro also two beauty shots of the city's iconic landmarks were provided: The Sugarloaf from a robotic camera mounted on Rio's Sul Tower and a shot along the Copacabana Beach with another robotic camera mounted on top of the nine TV Studios HBS had installed in front of the Sofitel at the Copacabana. The signals from Sul Tower were sent by RF (4km) to the TV Studios and then via fiber to the IBC at Riocentro. This enabled the control of pan, tilt, zoom and the remote control of a spinning glass that kept raindrops of the lens, from the IBC. Rounding up this impressive list of unmanned/remotely operated cameras were one which was mounted at the FIFA press conference room and another one mounted in the meeting room for the daily MRL briefings at the IBC.



The Equipment Room Containers (ERC)

In order to ensure the production of live replays, slow-motion action replays, highlights, and closers during any of the 64 matches, all 34 cameras were recorded on EVS XT3 production servers installed in the Equipment Room Container (ERC). One ERC was located for the duration of the competition in the TV compound at each of the 12 venues. The ERC was also home for the Sony camera control units, the Harris/Imagine routers, multi-viewers and digital glue products, the Sony vision mixer electronics, the Lawo audio mixer electronics, the Riedel Artist intercom matrix, and the Virtual Studio Manager (VSM) from L-S-B. The 12 ERCs were manufactured by HBS and the German system integrator sonoVTS in Munich. After testing they were shipped to Brazil. sonoVTS was also responsible for the delivery of the Cisco IT routers, the Guntermann + Drunck KVM switches, the Genelec audio monitors and the audio monitoring units from TSL and Sonifex.

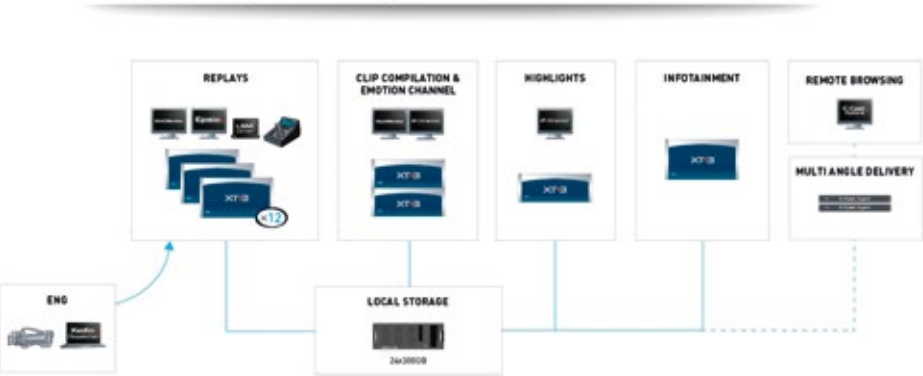
Multi-Camera Recording

A total of 192 XT3 servers (16 in each of the 12 ERCs) have been deployed. These advanced digital video platforms managed the ingest of all cameras around the pitch. The systems were based on a loop recording process, so every single shot was captured. Their dedicated architecture (high redundancy and fault tolerance, insuring that nothing could interrupt the recording and live replay process) guaranteed a maximum level of control for instant replays, highlights editing, compilations and best moments, or graphic insertions managed by the production team during the matches to analyse critical actions and deliver the best of the live competition. Each server could simultaneously ingest and control up to eight feeds or cameras.



All the 16 XT3 servers in one ERC were on the same high-bandwidth media sharing network and optimized for live operations, allowing operators and production teams to share content and to control media recorded on any XT3 server. Any camera feed recorded on one server could be reviewed, clipped and played out from any other server on the network. All of the XT3s were also clustered on a standard Gb Ethernet network to facilitate media exchange with non-live activities, such as highlights editing and remote production tasks. The XT3 live servers were configured with the built-in proxy feature allowing live encoded content to be simultaneously available in proxy format to facilitate instant access, review, and content selection by MRLs and HBS teams located at the International Broadcast Centre (IBC) in Rio de Janeiro using the new remote access browsing interface C-Cast Xplore to import unseen sequences from the venues.

Venue Equipment (per Venue)




Multilateral On-Screen Graphics

The on-screen design of the multilateral graphics and animation packages was created by FIFA and HBS and all elements have been made available to MRLs ahead of the event. The multilateral graphics inserted during the match were integrated only onto the lower half of the frame to keep the upper half free for MRLs' own graphic insertions. However, certain pre- and post-match graphics (e.g. starting line-ups) extended into the upper half. Accordingly, there was no permanent match score/running clock as part of the multilateral graphics. The running clock was inserted periodically into the score line graphics (with on-screen credits). Sony was appointed as FIFA's official information technology partner and received the on-screen credits. Match graphics were produced by HBS in cooperation with FIFA and deltatre, the on-screen graphics provider. The on-screen graphics were available in HD and SD and were designed in conjunction with the opening animation to provide a consistent on-screen design package. The design for the match graphics was kept simple so it did not distract from the on-pitch action. In order for accurate and representative match data to be displayed with the graphics, experienced spotters gathered statistics during each match. The assembled inputs were made available in the online database within seconds after being entered. Once the data had been gathered and fed into the centralized database, it was available for use in different official applications such as TV match graphics and the commentary monitoring system (CMS). The multilateral on-screen graphics presented relevant statistical information about the teams, match and players. This information included starting line-ups, the tactical positioning, group standings, match score, substitutions, individual and team statistics, team progression as well as weather conditions. All graphics presented on the ESF, Multimedia Feed and EBIF Show were in English only. They began with the pre-match programme and continued throughout the match and post-match programme. Other multilateral feeds did not contain permanent graphics during match coverage in order to make editing easier.

Player Tracking: The 22 active players on the pitch and the ball were tracked in near real-time. This data was sent to the central results system (CRS), from where it was made available as a bookable service to multiple users. By analyzing the data, a selection of animated graphics displaying the most interesting and relevant facts about the player and team performances during the competition, were produced on each match day and used to enhance the EBIF Show and the multimedia content. Selected graphics were made available on the FIFA MAX server. The chosen solution, provided by deltatre, acquired X,Y,Z coordinates in real time with the help of an optical tracking system. This system is based on sophisticated software algorithms to capture X and Y coordinates for every player on the field and X,Y,Z coordinates for the ball. Each "object" was covered multiple times (up to 15 times/sec), which allowed for virtual real-time tracking of player and ball movement.



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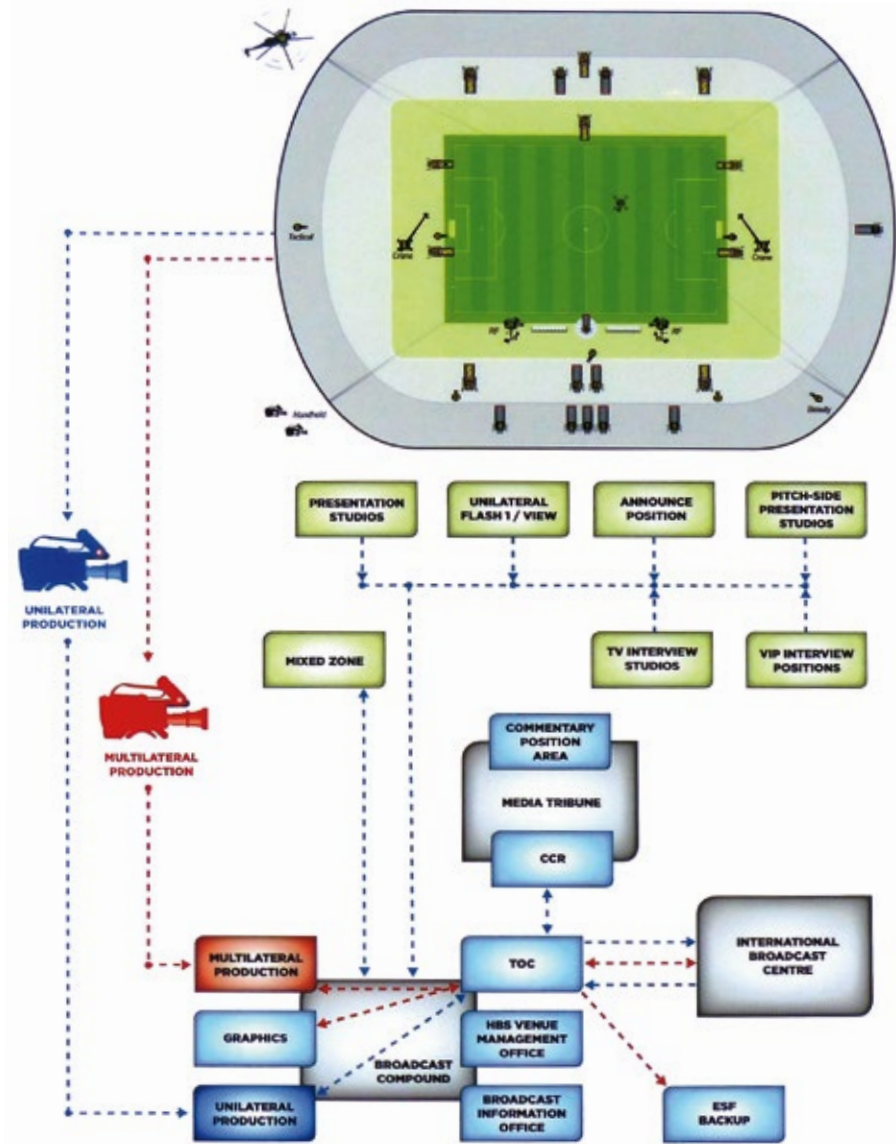
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FIFA Media Asset Exchange (MAX) Server

The FIFA MAX server enabled MRLs to access footage from a dedicated library. This service was offered for the first time at the 2006 FIFA World Cup in Germany and was greatly extended in 2010, largely due to the additional content produced by the FIFA TV ENG crews. The FIFA MAX was once again a hub for production operations during the competition. As such, material generated by HBS was uploaded and logged onto the server and users connected to the system were able to search via dedicated browsing stations and transfer the material into their system for their unilateral programming requirements: The FIFA MAX server was the very heart of the broadcast and media infrastructure in the International Broadcast Centre (IBC) at the Riocentro Exhibition Centre in Rio de Janeiro.

Virtual Offside Line: Following the successful use of virtual offside line graphics on ESF and CSF during the 2010 World Cup, these again were developed and produced for the Brazil tournament. The virtual offside line was added on site and was used sparingly and only when editorially relevant. No other virtual graphics were inserted on the main match feed (distance from wall, speed of kick, etc.). MRLs were not permitted to place their virtual systems alongside the 16m multilateral cameras, but were able to operate systems via picture recognition at the venue's broadcast compound or at their premises at the IBC.

Match Analysis Tool: The 3D sport analysis tool was provided by Viz Libero and was used for post-production purposes only. The system used the available TV camera images to generate virtual camera images, giving viewers the perfect perspective to analyze interesting or controversial scenes. The seamless combination of eye-catching 3D replays with powerful 3D effects, dynamic telestration and tied-to-field graphics created valuable analysis that was editorially supported by experienced football analysts. This was principally done for use in the EBIF Show, but these elements were also integrated into the multimedia content and were ingested in the FIFA MAX server.

To describe the match stories HBS was using visual effects such as 3D camera-to-camera flight transitions, novel 3D perspectives and 3D flights, advanced tracking tools, virtual slow motion and player virtual runs. The Viz Libero analysis tools were directly connected to the deltatre central result system to access all player tracking statistics and data through the liaison offered by Magma Pro machines. This speeded up the analysis production process significantly, increased the accuracy of the match analysis features and gave the option to include real-time statistics during the analysis.

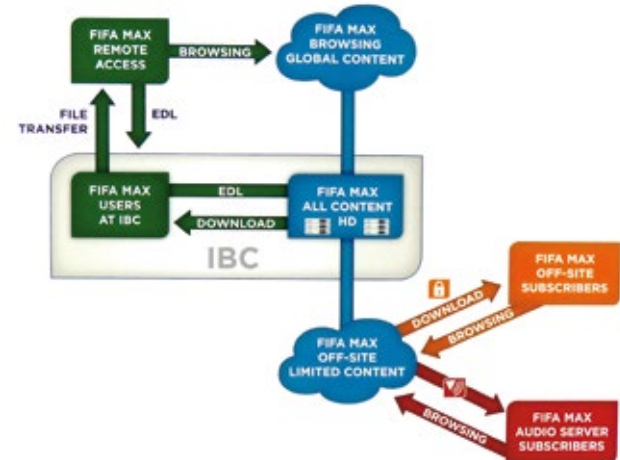
The live ingest infrastructure was based on six EVS XT3 servers, providing ingest of a total of 28 simultaneous feeds, for a total capacity of 2,200 hours of HD. The recording operations were managed with the IPDirector ingest scheduler. For each match the ingest server recorded nine different feeds originated at the venue including

Extended Stadium feed	Team B
Clean Extended Stadium	Player A
Feed	Player B
Tactical/Interview	Clips compilation 1 & 2
Team A	ISO Feeds

The encoding format for ingested material was the Panasonic AVC-Intra. While recorded on the ingest infrastructure, the live feeds were automatically streamed into the central storage and exchange platform of the FIFA MAX server based on the EVS XStore SAN system. The nearline storage system offered a total capacity of 5,500 hours of HD and low res Proxy, with an internal bandwidth of 50 Gbps and a storage size of 420Tb. Content ingested into the central storage was automatically generated in both hi- (AVC-Intra MXF OP1A) and low-resolution (H264).

From each match the following content was available for the MRLs and HBS:
Match Feed - Clip Compilation - ENG - Features - FIFA Toolkit - City Profile - Analysis and Statistics - Match Highlights - World Cup Update Programme - Selected ISO Camera Records - Team Trainings and Press Conferences - Match Day -1 - Music Sequences - MRL Stock Exchange.

Fourteen IPDirector logging stations were operated by HBS to add keywords and descriptive metadata to the incoming feeds. This enabled quick and easy searches, downloads and transfers of any relevant media required by HBS or MRL production teams working on match highlights, special edits or archiving. The logging metadata was electronically associated with each file to identify its content.



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The International Broadcast Center (IBC)

The IBC was located at Riocentro, an exhibition center about 30 km west from Rio de Janeiro. It was the central hub for all broadcast and multimedia production, exchange and distribution activities. HBS was responsible for the design, built and operation of the IBC and the full implementation of all unilateral services required by the MRLs located on site or in their home countries. The IBC covered 55,000m² of raw interior space comprising of 17 TV studios, constructed spaces for multilateral and unilateral areas, a satellite farm of more than 6,000m², and a power farm with Aggreko generators of more than 2,000m². The 280 HBS team members based at the IBC managed the production, the quality check and the distribution of approximately 5,000 hours of coverage from the 12 venues and the 43 ENG teams to the international community.

Content Production at the IBC

Team Features – Approximately 125 features related to the 32 teams in the competition were produced. They were integrated into the EBIF Show programming and the multimedia production plan. They also were available to MRLs as stand-alone products. Two Team Features were produced per match with duration of approximately 2’30” including an English guide voice-over and were published on the FIFA MAX server, both with and without graphics.

Daily Team Updates – In addition to the two Team Features for each match, a short feature was produced daily for each of the 32 teams. The Daily Team Update was a simple “News Style” edit of 90 seconds duration, showing team activity (training, travelling, free time, etc.), including two or three sound bites selected from the daily interviews or press conferences.

Story Features – A number of Story Features were produced for use in the FIFA TV Preview Show and the multimedia production plan, and as stand-alone products. The Story Features were approximately 2’30” in duration. There was an average of three features per day throughout the tournament.

Promo Features – Promo Features production was hugely successful. A minimum of two per match and a number of additional tournament promos were produced for use in the EBIF Show, FIFA TV Preview Show and the Multimedia Production Plan, and as standalone products. The Promos were available to MLRs via the FIFA MAX server.

FIFA TV Preview Show – In order to deliver extra value to broadcasters, FIFA was offering MRLs an additional programme: the FIFA TV Preview show. Combined with the EBIF show, this programme completed the daily broadcast offering. It was aimed at the morning or “breakfast” market, previewing all the day’s matches, and was delivered as a two-part 26-minute commercial programme. It was produced at the end of each Match Day-1, focusing on activities at the training camps and the latest news related to each team before the match. It tapped into the massive amount of content gathered but rarely seen by smaller broadcasters.



FIFA TV Review Show – To celebrate the 2014 FIFA World Cup Brazil, a special FIFA TV Review Show of approximately 50 minutes in duration was produced. The FIFA TV Review show was a programme that looked back at the best moments, images and sounds of the tournament. It recapped the event in a highly stylized countdown approach. The use of high-end graphics, music and voice-over helped to provide a unique look of the World Cup in Brazil. This programme was first delivered on Friday 11 July, two days before the end of the tournament, giving MRLs the opportunity to play it out ahead of the Final. A second version of 52 minutes, including the trophy lift of the German team, was also produced and made available just after the Final.

Multimedia Content Production

The World Cup in Brazil was a global multimedia event and the second screen user was not bound by the constraints of a TV schedule or by the linear experience of a TV programme. Tablet devices and quasi-permanent connectivity (3G, 4G, LTE, Wi-Fi) have changed the way people consume an event. While watching the match live on TV remains the most popular way for people to follow the completion, a variety of other options were available. In response to this new and rapidly developing sector FIFA

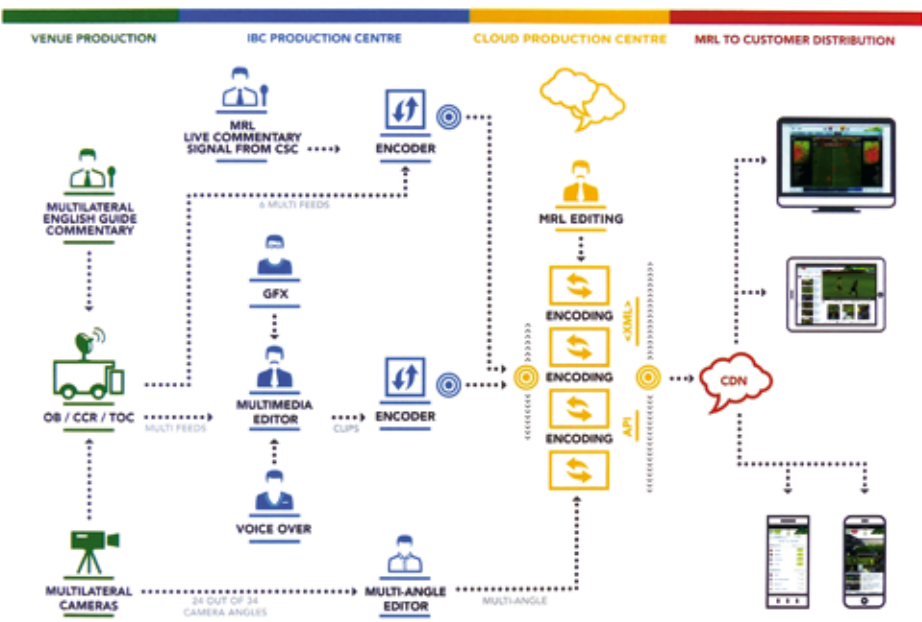
has developed a wide range of multimedia services that complemented and enhanced MRLs’ multimedia coverage of the World Cup. More than 33 MRLs had booked these services. The services included white label apps, white label web players and component elements, fulfilling MRLs’ request for turnkey solutions as well as the need for elements to be integrated into existing solutions to adapt the look and feel of each individual MRL. Licensed by FIFA, HBS selected EVS technologies for the distribution of live multimedia content to PCs, tablets, connected TVs and other smart devices. For the first time users were able to choose their own perspective of a FIFA World Cup. Using an interactive camera plan, fans were able to select and review multiple camera angles at any given moment – clicking on one of the icons on the plane changed the video instantly.

<i>The back-end content included the following services supported by EVS:</i>
Multimedia live matchcast
Dedicated mobile/multimedia feed
Additional Video-on-Demand (VoD) content
Multi-angle content
In-Match clip content,
Multimedia and text messages (MMS, SMS)
Interactive Data access
Data visualization

<i>The available user interfaces for MLRs included</i>
Apps for the major platforms (Android, iOS), mobile and tablet versions
White label broadband services

Handling the technical orchestration of the content, the EVS C-Cast system provided an end-to-end second screen production solution for the delivery of multiple live steaming feeds (multimedia live matchcast), the multi-angle content and additional VoD distribution to sports fans on millions of devices worldwide.

<i>The technical infrastructure of EVS integrated a multitude of leading technology solutions all working together offering the best interactive and multimedia consumption experience for viewers:</i>
Elemental Cloud for cloud processing of live feed streaming
Aspera for the high-bandwidth file transfer from venue to the cloud based infrastructure
Bright cove cloud based media transcoding operation
Amazon S3 storage
Akamai content delivery network (CDN)
NETCO Sports second-screen app designer



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During live matches six feeds (camera angles) recorded on EVS XT3 servers at the venue were automatically processed by EVS C-Cast Agent contribution encoders and were sent as 10Mbps streams to the IBC via a fibre network. At the IBC the incoming feeds were referenced by a C-Cast Central, while being delivered over fibre from the IBC to an Amazon S3 storage facility in Dublin where the EVS C-Cast production was deployed. Each incoming feed was fragmented in 2 seconds length packets for an efficient file delivery which were further re-consolidated in 6 seconds length packets by Elemental which then generated a bouquet of 10 different bitrates at 10 Mbps for delivery to MRLs globally via CDN. Some additional content could be imported by MRLs through Elemental and referenced with C-Cast Central to enrich the streams with dedicated content such as interviews, highlights and archive material.

Bild 35: Multi-Angle Content

Multi-Angle Content

For all major events of a match the best angles as well as screens not seen in the matchcast were selected by four operators at the IBC. Approved clips were transferred as 10Mbps multi-angle clips to a dedicated storage area on the FIFA MAX server and transferred through Aspera over fibre from the IBC to the Amazon S3 storage facility in Dublin. Here the BrightCove Zencoder cloud-based transcoding system generated the appropriate formats (10 different bitrates) for the final delivery. The end-users saw these scenes appearing on the timeline of their devices together with a camera plan and were able to select the camera angle through which they would like to review the scene.

Multi-angle clips were made available in multiple resolutions and bandwidths. Access to multi-angle content was available through an API which enabled MRLs to directly implement the multi-angle experience into their existing multimedia environment. Delivery time for the first asset was approximately 3 minutes after the action was happening with at least three different angles.

IBC Technical Facilities

Master Control Room (MCR): The MCR was the central distribution point within the IBC for all incoming (venues and non-venue) and outgoing broadcast circuits (Telco and Satellite Farm). All incoming feeds through general telecom interfaces (fibre optic or satellite downlink) were monitored and distributed to MRLs as well as to the Production Centre within the IBC, regardless of the signal format (HD or SD). The correct distribution of incoming unilateral VandAs on bookable circuits/time slots to the respective MRL or directly to telecom interfaces was handled by the MCR. Outgoing unilateral feeds from MRLs and multilateral feeds from the Production Centre were monitored and distributed to the Telco Room and the Satellite Farm. The MCR control system for the central router system was renewed. Other than the MCR “Emergency” control panels, all router control panels were replaced by 24” and 10.2” touch screen displays offering more sophisticated features and control options to the HBS operational staff.

Multimedia Live Matchcast

The matchcast was a combination of the main match coverage with embedded data delivered via a live stream or file for a catch-up service. Viewers were able to choose from six camera angles during live streaming and as many as 24 for on-demand content. The six live feeds included the main match coverage, two player feeds (one per team), two team feeds (one per team) and the tactical feed.

During the design process of the C-Cast multimedia workflow it was obvious that video processing resources could become a bottleneck. During the 64-match World Cup schedule more than 3,900 hours of video processing (61.25 hours per game) were required to deliver premium live and catch-up coverage to viewers. Traditional hardware-based video processing solutions were not able to handle this massive spike in demand. EVS selected Elemental Cloud to address this issue to be able to deliver reliable high-quality, high resolution live content across multi streaming protocols.



Commentary Switching Centre (CSC): Located adjacent to the MCR the CSC controlled and connected all national and international commentary and coordination audio circuits. After the successful implementation of computer-based audio circuit switching at the 2006 FIFA World Cup in Germany, the service provided to MRLs was further improved in 2010. The same audio matrix was implemented for this year’s World Cup, connecting all venues to the IBC with uncompressed high quality audio circuits, thereby shortening st-up times between matches. The entire signal path was redundant via protected WAN connections and was fully under control of HBS operational staff.

Production Control Room (PCR): The PCR was the central distribution point for incoming and outgoing feeds within the Production Centre. It also ensured that all individual exchanges of programme material proceeded smoothly inside the centre. The PCR dealt with daily requests and technical requirements from the multilateral production facilities within the Production Centre. All feeds and multimedia content were switched through the PCR production router. The PCR controlled and monitored the ingest and outgest process of all multilateral feeds and other produced material to and from the FIFA MAX server, as well as the incoming file transfer, transcoding and ingestion of ENG materials.



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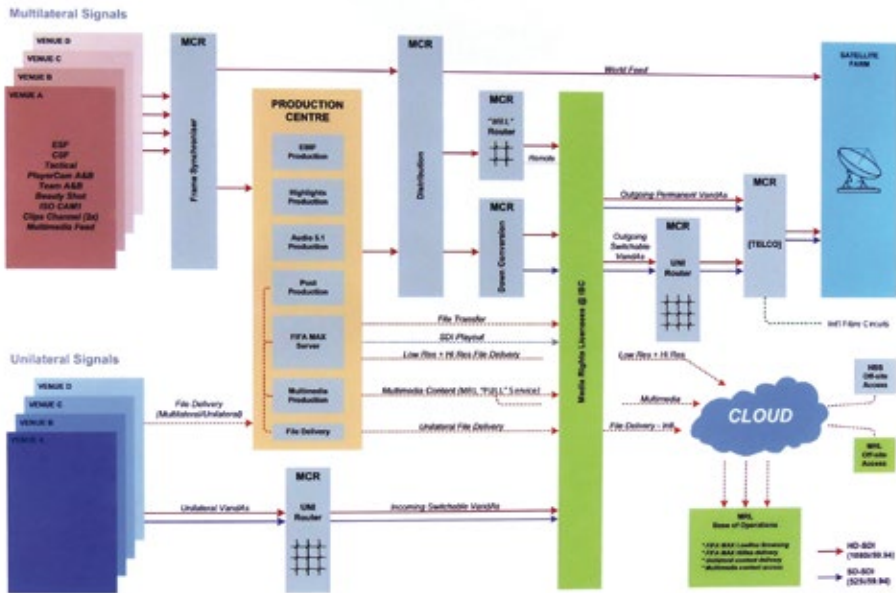
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Quality Control Room (QCR): The QCR served as the central point for HBS’ quality control and as the command centre of any audio and video content produced as part of the overall television production of the world cup. A separate QCR for the multimedia production was located in in the multimedia area of the Production Centre. A large monitoring gallery allowed simultaneous monitoring of all feeds produced by the Match Production Teams at the venues as well as by the various production personnel at the Production Centre, showing all multilateral feeds produced at the venues and the IBC – including all feeds ingested/outgested onto/from the FIFA MAX server.

EBIF Show Live Production Rooms: The EBIF Show feed was produced live at the IBC. There were two dedicated live EBIF Show Production Rooms where all the various elements of the pre-match, half-time and full-time programmes (titles, features, live match coverage, match highlights, analysis, voice-over guide, graphics, etc.) were mixed to produce the programme for the 64 matches of the event – working in parallel during the simultaneous matches. There were also two multilateral Permanent Highlights live production rooms scheduled to cover all matches and to work in parallel during the simultaneous matches. A 5.1 Surround Sound mix was produced to accompany all the matches. This mix complemented the HD streams and was also available to SD MRLs. There were two 5.1 Surround Sound production rooms at the IBC – both were equipped with Lawo m²56 consoles.



Outside Presentation Studios (OPS)

Nine OPS were located on Avenida Atlantica in front of the Sofitel hotel, offering an iconic view of Copacabana Beach and Sugarloaf Mountain. When broadcasters with space at the Outside Presentation Studios welcomed their audience for the Opening Match of the 2014 FIFA World Cup Brazil™ there was no mistaking their presence in the host country - the view of Sugarloaf Mountain had never looked as good as it did from the OPS. The problem was that the best view identified was from the end of Copacabana Beach on Avenida Atlantica, a main traffic artery in Rio’s Zona Sul. HBS’ solution was to construct the studios on top of a nine-metre high platform that would straddle the road and pavement, without affecting pedestrians and vehicles.

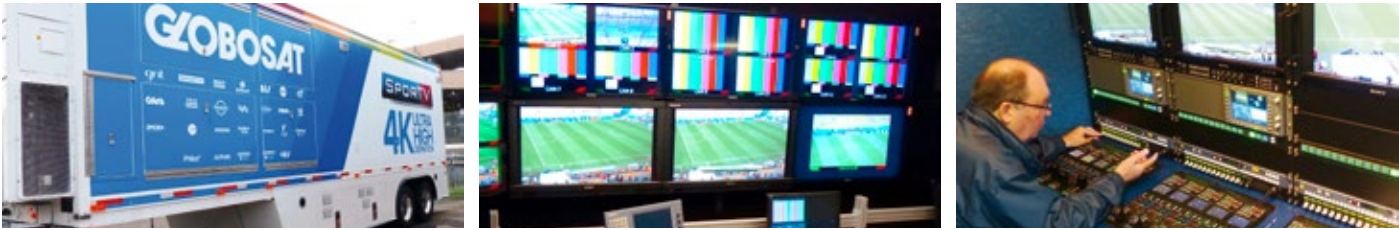
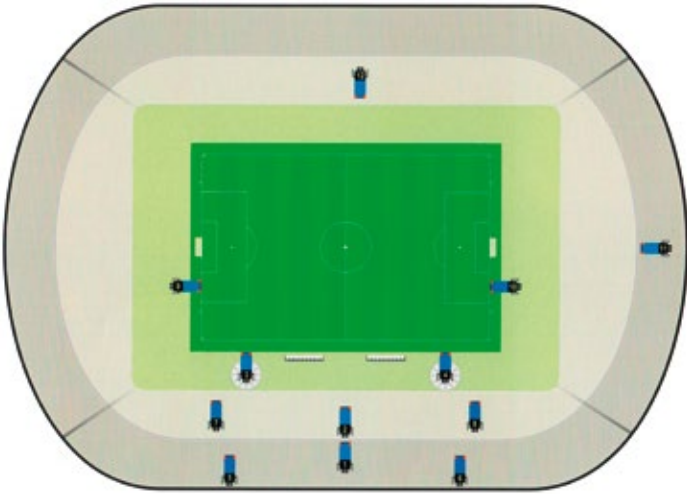
Standing 22 metres tall in total, 57 metres in length and 50 metres in width the giant structure offered studio sizes of 56m² and 108m² and was connected to 37 porta cabins and generators on-site. Each studio offered 1 GbE connectivity to the IBC, sound isolation and wireless connectivity to enable camera crews to shoot from the famous beach. Eleven broadcasters from eight countries, including beIN Sports, BBC, KBS, ITV, SKY Italia and SBS Australia chose to broadcast from the OPS.



Pushing New Boundaries with 4K

This year saw the next evolution in sports broadcasting with the first ever 4K World Cup coverage. A game-changer for live sports production, three matches - including one of the round of 16, one Quarter Final and the Final (all staged at the Estadio Maracanã in Rio de Janeiro) - were captured in live 4K, creating the most immersive, visually spectacular viewing experience sports fans have experienced yet.

Working together, Sony and HBS were responsible for the 4K project in Brazil. Sony had selected Brazilian outside broadcast and programming company Globosat (part of TV Globo Group) and UK-based outside broadcast company Telegenic to provide the production platform. Globosat was responsible for the provision of its 4K OB truck with a Lawo mc²56 audio mixer and a Clear-Com Eclipse intercom matrix, whilst Telegenic brought their technical expertise and experience, gained at the Confederations Cup 4K trial last year, to the project. Both companies have been chosen because of their reputation as innovators in their fields, bringing a wealth of expertise in live sports production and reputations for broadcast excellence. Fujinon was providing lenses for the 4K production.



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The three 4K productions were carried out with 12 Sony PMW-F55 cameras and a Sony F65 (recording at 120 frames per second for slow-motion replays was the only “prototype” in the production), 7 EVS replay servers as well as a Sony PWS-4400 4K replay server for the slow-motion replays, PVM-X300 4K LCD monitors and a MVS-7000X 4K multi-format switcher. There were also eight HD sources from the HD production that were up-converted and made available for the 4K productions. The EVS XT3 4K servers were capable of recording two inputs and playing out one versus last year at the Confederations Cup when they were one input and one output. That means that all cameras now were available for replay. But the biggest advance was actually within the Sony production switcher as it was much easier to set it up and operate during the match.

The use of the eight HD sources gave the production team the flexibility to work around issues like 4K RF, which is an area that needs a lot of work and is currently not feasible. However up-converted aerial cameras and Steadicams made the production more complete.

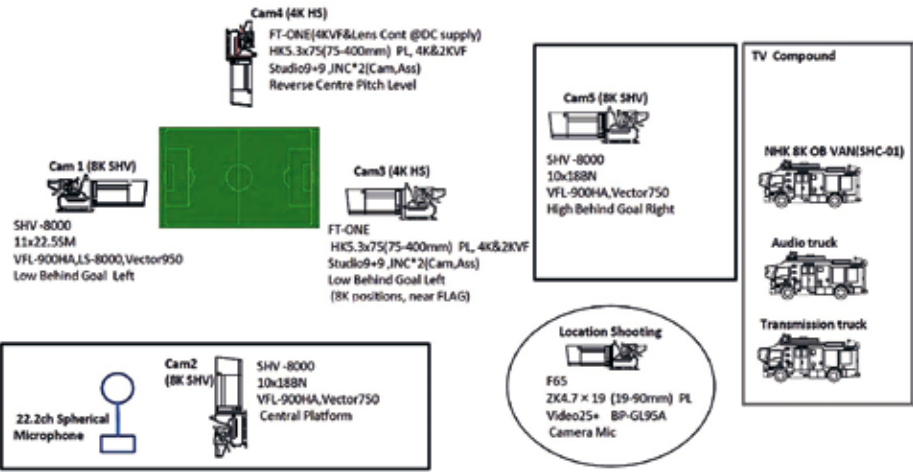


For the advanced 4K production facility at the IBC, Quantel’s high quality color and finishing systems were chosen by Sony. The Quantel GE2 system, which includes two Pablo Rio 4K color correction and finishing systems sharing storage and workflow via a GenePool, were used for the production of fast-turnaround 4K highlights packages. These were distributed to broadcasters and Sony Stores worldwide as well as being displayed on 4K screens in fan parks around Brazil. The Quantel system will also be used for the post production of the Official FIFA World Cup™ film in 4K Ultra HD.

The Quantel system worked with 4K 60p XAVC media recorded on either the Sony PMW-F55 cameras which were used by FIFA Film crews throughout the competition or the Sony Servers used for the 4K Live Production of three matches played at the Maracanã Stadium. All XAVC media was instantly available for viewing and editing on the Pablo Rio colour and finishing systems thanks to their ability to begin work immediately with soft-mounted media without transcoding or importing. The Quantel system recorded live 4K 60p via Quad 3G SDI, which was edited even while recording.

8K Match Production

FIFA TV has a proud legacy of pioneering new television technology at FIFA tournaments to ensure that football fans around the world can enjoy the best quality sports coverage on offer. The 2014 FIFA World Cup Brazil was no different with the very latest in visual technology either being used in the broadcast production of key matches and events or being tested for use in future competitions. While many of the world’s broadcasters are still looking to the next stage of TV standard, NHK was making a huge show in Brazil of its ultimate plan, which is to see 8K Super Hi-Vision start broadcasting in 2020.



As a collaborative project NHK (Japan Broadcasting Corporation) and FIFA co-hosted a series of live and recorded public viewings of nine matches in 8K Super Hi-Vision at the Sofitel in Rio de Janeiro at the Copacabana (FIFA Official Hotel), CBPF (Centro Brasileiro de Pesquisas Físicas) and the IBC SHV screen. In addition to the presentation at the three viewing sites in Brazil NHK was beaming the nine FIFA World Cup matches in 8K back to Japan. NHK was travelling with its SHC-01 8K OBVan from Receife (Cost of Ivory – Japan), to Natal (Ghana – USA and Japan - Greece), to Brasilia (Cameron – Brazil) to Belo Horizonte (Chile – Brazil) back to Brasilia (France –

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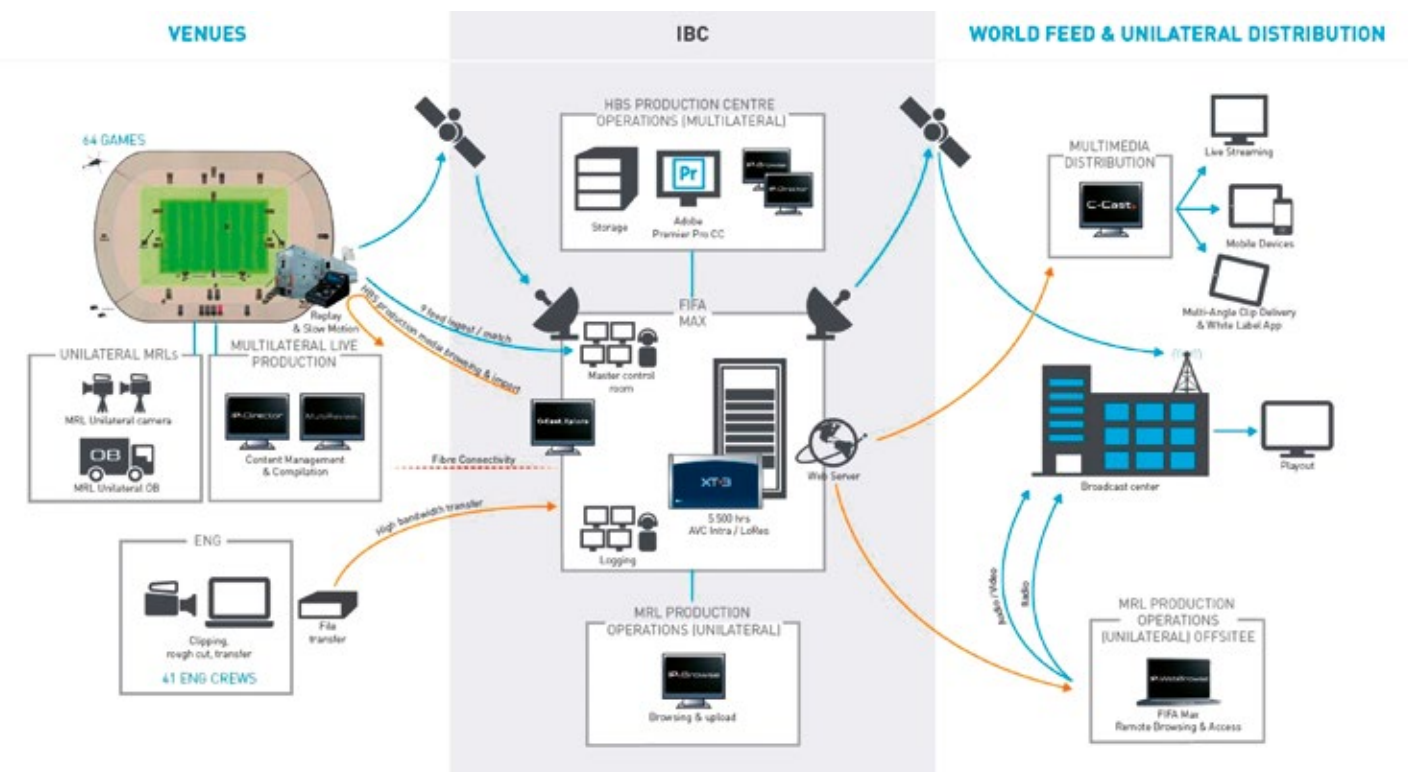
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Nigeria and one Quarter Final) further on again to Belo Horizonte for one Half Final and finally to Rio de Janeiro for the 2014 FIFA World Cup Final. These nine matches were shown in Japan in Tokyo, Yokohama, Osaka and Tokushima on giant screens.

The signal of the nine matches was generated by three Ikegami SHV-8000 8K cameras, two FOR.A FT-ONE high speed cameras (up converted from 4K to 8K) and one Sony F-65 camera for location shooting. The 8K OBVan was travelling together with an audio truck for the recording of 22.2 surround sound on a Lawo mc²66 MKII console, a transmission truck and an equipment truck. The Brazilian tour of the four trucks was more than 4,200km long. The signals from the nine matches were transmitted to Tokyo via CBPF for Public Viewing. They were also



down-converted to 4K at the IBC in order for the integration into the FIFA TV- Sony 4K production to make up the Official FIFA World Cup™ film. Director of FIFA TV Niclas Ericson said: "With Ultra HD technology, such as 4K and 8K, we are exploring imagery that is truly at the cutting edge of TV production. We are proud to be able to innovate in this way to improve the viewing experience for football fans around the world. The new technologies also include ground breaking standards in sound quality, bringing the viewer almost 'into the stadium'."



FACTS AND FIGURES

General Information

Edition of the FIFA World Cup	20th
Opening Match	12 June 2014
Final	13 July 2014
Number of participating Teams	32
Number of Matches	64
Number of Territories reached	220
Main TV Licensees	161
Sub-Licensees	305
Radio	150
All territories of the world were covered with contracts	

Production

Number of Cameras in Standard Camera Plan	34
FIFA World Cup "Dream Team" Match Directors	8
Number of different feeds	20
Unilateral camera positions per match	up to 70
Total hours of coverage (including ENG teams)	5,000 approx.
Total number of cameras	300+
Crane cameras	24
Cable-Cam systems	12
Aerial camera flying hours	500+
Number of ENG Crews (Team/Story/IBC)	43 (32/9/2)
IBC production staff	280
Field production staff	150+
Number of beauty shot locations in Rio de Janeiro	2
Edit suites (regular production/multimedia)	36 (18/16)
4K FIFA-Sony production 3 matches in Rio de Janeiro	12 cameras Live
8K FIFA-NHK production 9 matches	5 cameras

Multimedia

Number of MRL agencies taking multimedia content	33+
Number of countries reached with multimedia content	80+
Number of multimedia service orders	100+



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International Broadcast Centre (IBC)

Raw indoor space	55,000m ²
Constructed space for multilateral areas	8,305m ²
Constructed space for unilateral areas	13,225m ²
Production Centre	2,620m ²
ENG Centre	352m ²
TV Studios	17
Largest TV Studio	400m ²
Largest unilateral area	2,250m ²
Smallest unilateral area	22m ²
Satellite Farm	6,000m ²
Technical compound (power generator)	2,000m ²
Installed capacity of air conditioning system	1,311TR
Air conditioning units	570
Electrical boards	145
Lighting Fixtures	3,372
Double sockets – domestic power	3,425
Primary electrical cable	67,542m
Secondary electrical cable	49,749m
Fire detection cable	9,278m
Smoke detectors	1,121
Video circuits	300
HD CATV 40" screens	350
Elevated Outside Presentation Studios at Copacabana	9
Start of Construction	2 Dec 2013
Total construction time	5 months
First MRL arrival	12 May 2014
IBC fully operational	3 June 2014
Total dismantling time	7 weeks



Telebras, Brazil's national telecommunications company, has provided the fibre-optic network that connects all 12 venues with the IBC in Rio, to precise technical specifications, compatible with the FIFA World Cup™ multi-feed concept and the needs of Media Rights Licensees.

Logistics

Accredited event time staff	2,900+
MRL accreditations	15,000
Supplementary Access Devices (SADs)	52,000
Crew uniform items	50,000
Hotel room nights	80,000
International flights	3,000
Domestic flights	1,400
Car rental days	11,500
Bus rental days	1,000
Charter flights	46
People/tons of equipment per charter flight	110/5 tons
Air freight	150 tons
Sea containers	100
Pallets with cameras, tripods and lenses	200
Meal vouchers distributed	43,000

Telco

Number of venues permanently connect to the IBC	12
File transfere services across all venues	12
Additional file transfere injection points across Brazil	26

Venues

Number of Venues	12
Staff at Venues	1,875
Total number of commentary positions	1,210
Commentary positions with ComCam per venue	6-20
Total number of commentary units	840
Total number of TV Studios	34
Total number of Presentation Studios	56
Video Switching Systems	40
Cabling across all venues	1,167km
Total compound space at venues	54,000m ²

Human Resources

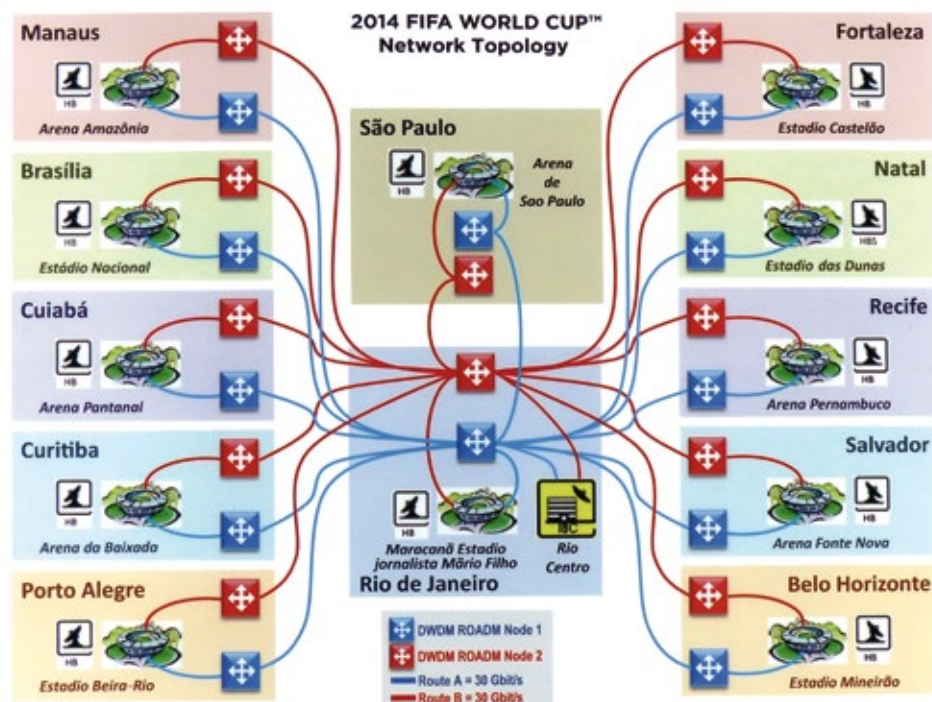
Total number of staff during event time	3,018
Number of Nationalities of staff	48

Booking

Services in the Catalogue of Services (COS)	436
MRLs (41 nationalities) with unilateral space at the IBC	86

„...AND
AT THE END,
THE GERMANS
ALWAYS WIN.“

Gary Lineker



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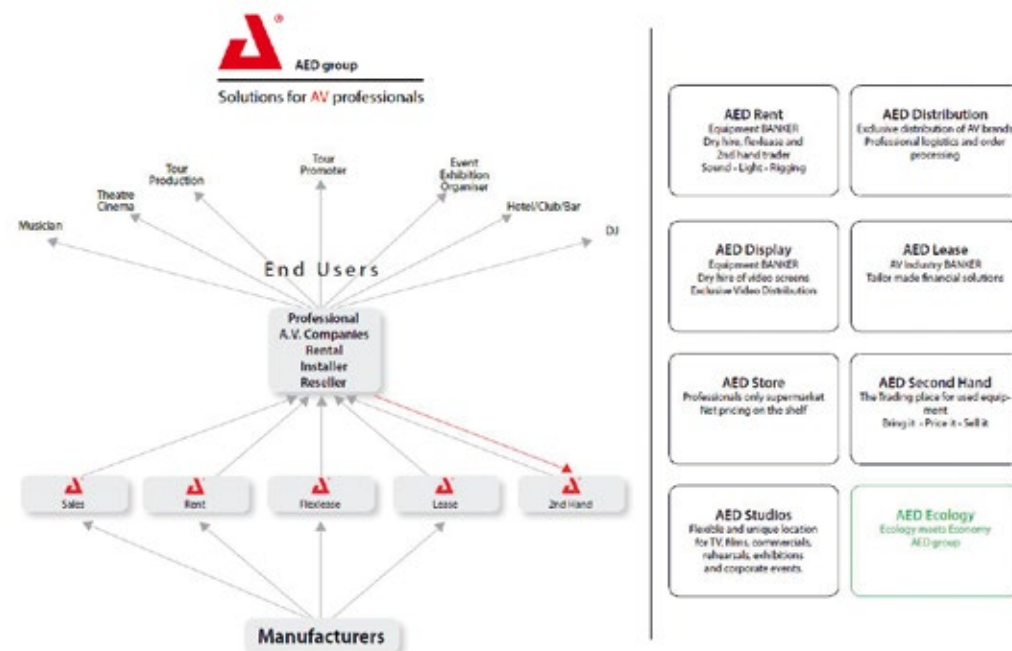
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The AED group

Belgian based AED group with divisions in The Netherlands, Germany, France and the United Kingdom, is the only Total Solution Provider within the AV industry. With 5 solutions and 7 business concepts it offers the perfect business tools for AV professionals. When used correctly and in balance, those 5 solutions will help AV companies (rental companies, retailers, integrators, installers) to achieve their goals.

7 Cornerstones

Discretion and mutual respect
Transparent pricing and business structure
Efficient and clean warehouses
Passion for equipment
Customer driven
Swift offers
Strict but correct procedures



7 Business Concepts

AED Rent & AED Display

Equipment BANKER, dry hire, flexlease, sound / light / rigging / projectors / LED walls / plasma & LCD – Exclusive video distribution

- Large inventory
- Industry standards
- State of the art products
- Young rental fleet
- Fast and accurate service

AED Distribution

Exclusive Distribution of AV brands

- More than 180.000 products on stock
- Professional logistics and order processing
- EASE Simulation and CAD design
- Sales solutions supported by the AED group
- Clients : rental companies, installers and retailers

AED Store

Supermarket for AV professionals, net pricing on the shelf

- AV Consumables
- Industry Standards
- Best buy's = A prices
- Wide range of products
- One-stop-shop
- + 75.000 articles on stock
- 7.000 m² of shops in Europe
- Your backdrop within an hour

AED Lease

AV industry bank. Tailor made financial solutions for AV professionals

- The only AV Industry bank, tailor made solutions financial solutions for AV professionals
- Unique rate of 1,5% (48 months) per month
- Warranty covered by AED group
- Credit approval within 48 hours
- Possibility downpayment with used equipment
- Purchase option at lease-end

AED Second Hand

The trading place for used equipment. Bring it – Price it – Sell it

- Nearly new equipment from the AED group
- Third party used equipment
- 3000 m² surface in the AED stores
- A way to optimize your rental fleet, warehouse and cash flow

AED Studios

Flexible and unique location for TV, films, commercials, rehearsals, exhibitions, and corporate events

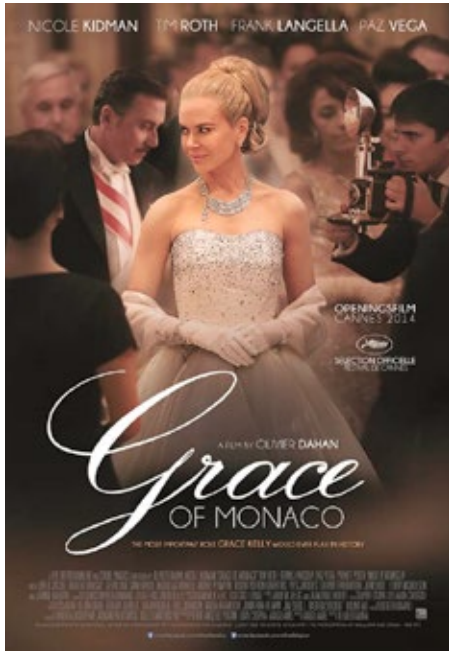
- 16 Studios
- 12 Flexrooms
- 41 Artist suites
- 17 Apartments
- 3.000 m² Offices
- 14.000 m² Parking
- 4 Backstage Areas

DT 109 MOST WANTED CAMERA HEADSET

PROFESSIONAL
AUDIO PRODUCTS
MADE IN GERMANY



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TECHNICAL
SYNOPSIS

AED Studio 1

Studio

Dimensions

Stage floor: 1.219m² (13.121ft²)
Length: 53m (174ft)
Width: 23m (75ft)
Height to beams: 7,3m (24ft)
Distance between beams: 4m (13ft)
Height to ceiling: 8,6m (28ft)
Floor load: 1 ton/m² (23.735lbs/ft²)
Weight loading beams: 4.000kg/beam;
200kg/m (8.820lbs/beam; 1.447lbs/ft)

Point load beams

1.700kg (3.748,5lbs) in the middle
1.400kg (3.087lbs) spread over 2 points
Gate: 3,4m x 4,1m (11ft x 13ft)

Background

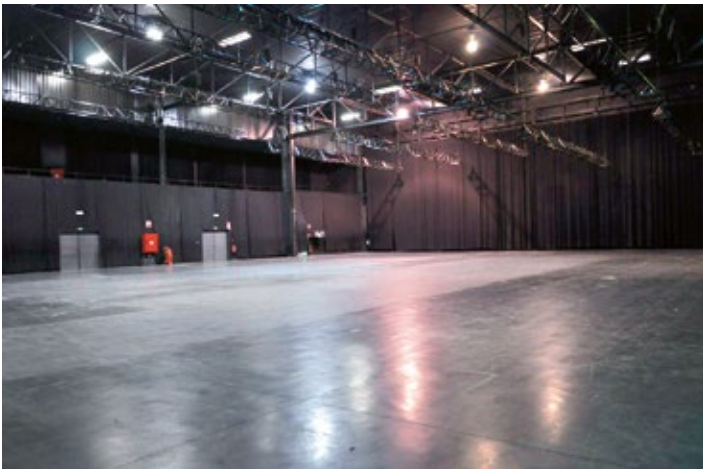
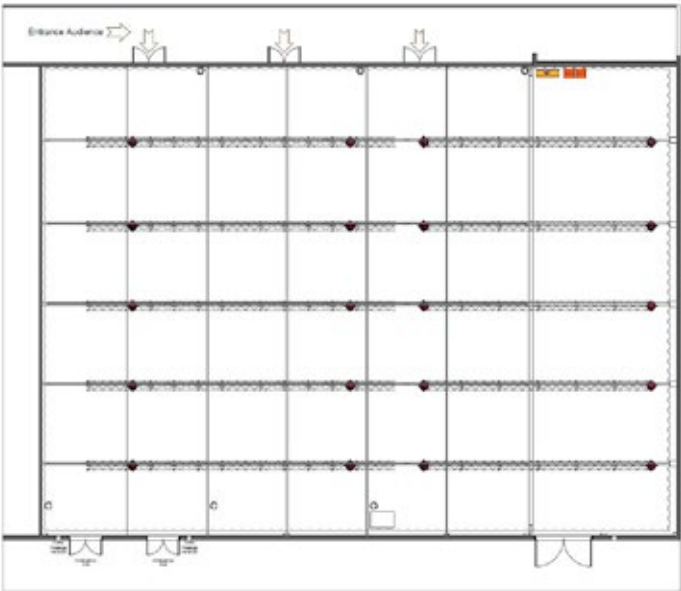
Black backdrop: 150m (492ft)

Power

2 x 125A CEE
2 x 32A CEE
2 x 400A powerlock

Capacity

Dinner: ±450 people
Reception: ±1.200 people
Academic: ±750 people



TECHNICAL
SYNOPSIS

AED Studio 9

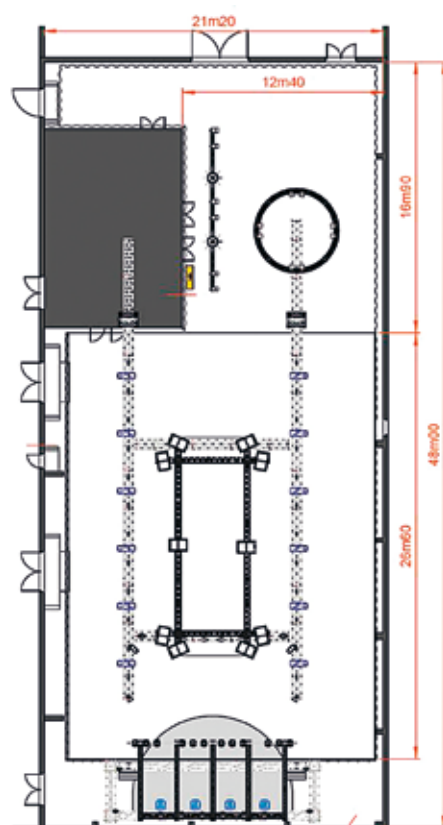
Studio

Dimensions

Stage floor: 1.200m² (12.917ft²)
Length: 40m (131ft)
Width: 30m (98ft)
Height to beams (A): 8,38m (27ft)
Distance between beams: 5m (16ft)
Height to beams (B): 10,28m (34ft)
Height to ceiling: 10,3m (34ft)
Floor load: 2 ton/m² (47.470lbs/ft²)
Gate: 3,5m x 4,2m (11ft x 14ft)

Background:

Black backdrop: 120m (394ft)



TECHNICAL SYNOPSIS

AED Studio 11

Studio

Barco Virtual World is an exclusive experience

A permanent presence of 10 full HD Barco projectors, 10 HD media servers, +500m² screens, light and quadrophonic sound are present to make your event an unforgettable experience.

Dimensions

Stage floor: 1.000m² (10.764ft²)
Length: 50m (164ft)
Width: 20m (66ft)
Height to beams: 8,6m (28ft)
Floor load: 1ton/m² (23.735lbs/ft²)
Gate: 3,5m x 3,6m (11ft x 12ft)

Power

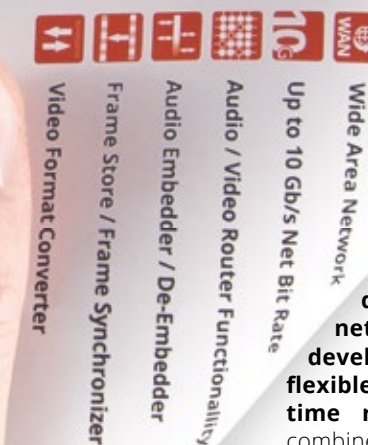
1 x 125A CEE
1 x 63A CEE

Capacity

Dinner: ±400 people
Reception: ±1.200 people
Academic: ±750 people

MEDIORNET

2.0



To make
a long story
short...

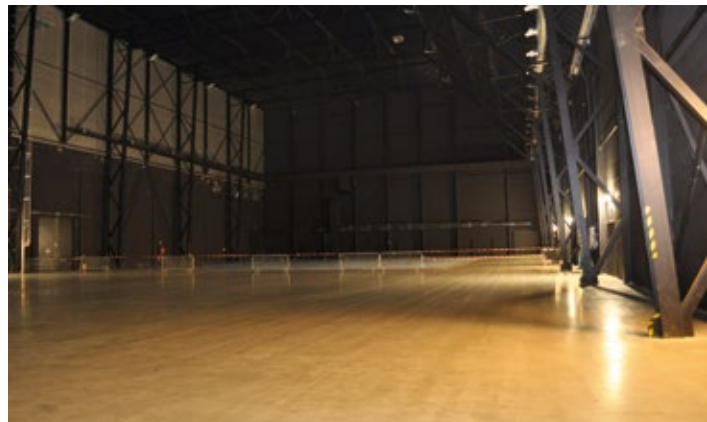
Thus, Riedel with its decentralized real-time network MediorNet has developed a solution with flexible topology and real-time routing function, which combines various transmission standards and can be perfectly used as an alternative to conventional video routers. The low installation depth makes the system ideal for use as a stagebox.

Thanks to the integrated WAN transmission technology, remote MediorNet Systems can be connected in an easy and intelligent way.

Due to the extremely high bandwidth, MediorNet has proven itself as an ideal backbone solution in many major projects.

MediorNet 2.0 is Riedel's next step of this technological evolution.





With studio 12 the AED Studios has a perfectly equipped underwater film studio. With a total area of 3.000m² and a height of 22 meters this complex exceeds in size any similar recording studio in the Benelux. Besides the largest television studio, this studio is also the largest indoor water film studios in Europe! The studio has a water basin with a capacity of 3,3 million liters of water. The studio facilities are also supplemented with 46 guest rooms spread over 17 apartments, a cafeteria, dressing rooms, a terrace, offices, ...

TECHNICAL SYNOPSIS

AED Studio 12 **Studio**

Dimensions Studio

Stage floor: 3.000m² (32.292ft²)
Length: 75m (246ft)
Width: 40m (131ft)
Height: 22m (72ft)
Gate: 3,6 x 4,45 (BxH)
Floor load: 1 ton/m² (23.735lbs/ft²)

Dimensions Pool

Surface: 875m² (9.418,5ft²)
Length: 35m (115ft)
Width: 25m (82ft)
Dept: 3,80m (12ft)

Power

4 x 125A CEE
4 x 32A CEE
3 x 400A Powerlock



AMP VISUAL TV

LIVE
PORTRAIT

**OB Vans
Studios**

**FlyPacks
Wireless**

General Contact

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177, avenue des grésillons
92230 Gennevilliers
France

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fabrice.miannay@ampvisualtv.tv
Tel: +33 1 46 88 1076



Exploring together the future of television

We imagine, build and operate shooting, transmission, enhancement, storage, second screen and broadcasting solutions for sport events. AMP VISUAL TV, a French company, is one of the European providers in TV sport coverage, as well as one of the world's leading providers in motorsport. More than 400 staff members are at your service: a complete OBVan fleet (19 units), a wireless solutions offering, 2nd screen solutions and TV studios with 22 sets from 70 to 1,000 m² for all requirements.

Our aim is to meet our client's expectations by capitalizing on our expert staff, combining their knowledge with the highest skills and creating the best solutions to enable our customers to achieve their objectives.



Our OBVans satisfy the most complex sport event coverage: large camera and LSM capacity, double audio and video control rooms, graphics... complemented by three fly aways for specific requirements and also small OBVans for web applications.

Our studios are completely soundproofed and air-conditioned sets. The majority offer 360 degree black curtaining. They are excellently designed, decorated and maintained to ensure ideal shooting conditions. We offer convivial and contemporary dressing rooms. The Sets can be operated by fixed or mobile control rooms. Our teams provide services for your specific requirements - including catering, parking, scenery storage, VIP welcome, pooling on request.

Our RF Factory is specialized in deploying bespoke RF solutions. From a simple RF camera to some of the most complex infrastructures requiring a fixed wing RF system or helicopters, helicopter shoots, optical fiber deployment, telemetry, radio intercom, long distance RF links, on-board cameras, GPS... RF FACTORY will deliver.

Bespoke solutions: AMP VISUAL TV imagines and integrates innovative and original technical solutions to obtain stunning images. RF FACTORY teams listen to and understand the client's expectations so whatever the event RF Factory can provide the optimal solution.

The Stream Factory: Expert service to enhance, archive and broadcast images. Live or VOD program diffusion on all devices is essential to reach and expand audiences. From image creation to their diffusion, including fiber or satellite, Data and Media centers, program flow is now unlimited in quantity and in interactivity.

Our teams encode onsite or recover your signal live from our media center for encoding, publish your video in real time and provide you with advanced audience ratings statistics for your events. Whether we do or not shoot your event, our teams are responsible to recover your live stream SD, HD, Rich Media, since Media Data Center, encode and broadcast on all connected devices.

For over 10 years, the Stream Factory integrated service has been developing and mastering all the digital broadcasting solutions for TV programs.

AMP VISUAL TV works on the implementation of all the new technologies on your coverage. Having already pioneered High Definition filming, the AMP VISUAL TV Group is also the European pioneer in the production of 4K and multi-camera 3D filming. "It's an emerging market which we really believe in," emphasizes Gilles Sallé, the Chairman and CEO of the Group.

400
Members of
permanent staff

15 000
hours of
programs provided
per year

101
million Euros
turnover

4000
shoots per year

4K Mobiles
apps
Graphic design 3D
Engineering
Technology reviews
4G broadcasting
RF Mpeg4

Today, with more than 200 hours of film already in the box, the AMP VISUAL TV Group fully masters 3D technology. Some of the specific projects produced over the last year include the first European 3D capture of a football match, the Roland Garros French Open, the "Don Giovanni" opera in Rennes, the Julien Clerc concert in Lyon, various first division football matches and the "Nouvelle Star" reality TV show. These experiences have enabled AMP VISUAL TV to put processes in place, adapt the equipment to this new way of writing programmes, and acquire the fundamental skills necessary for 3D filming...which, above all, requires practical experience.

POWER TO YOUR NEXT STEP

Tell your story with
a ground breaking
range of lenses

Canon's EF Cinema lenses are exclusively designed to stimulate creative expression. Capable of 4K resolution and beyond, they offer outstanding optical performance and exceptional usability. The latest addition - the CN7x17 KAS S E1/P1 - is designed for broadcast and handheld use, featuring a 7x zoom and removable servo drive unit for a new level of versatility.

CINEMA EOS



4K

CN7x17
KAS S E1/P1
NEW



you can

Canon

Take your next step at canon-europe.com/cinemaeos

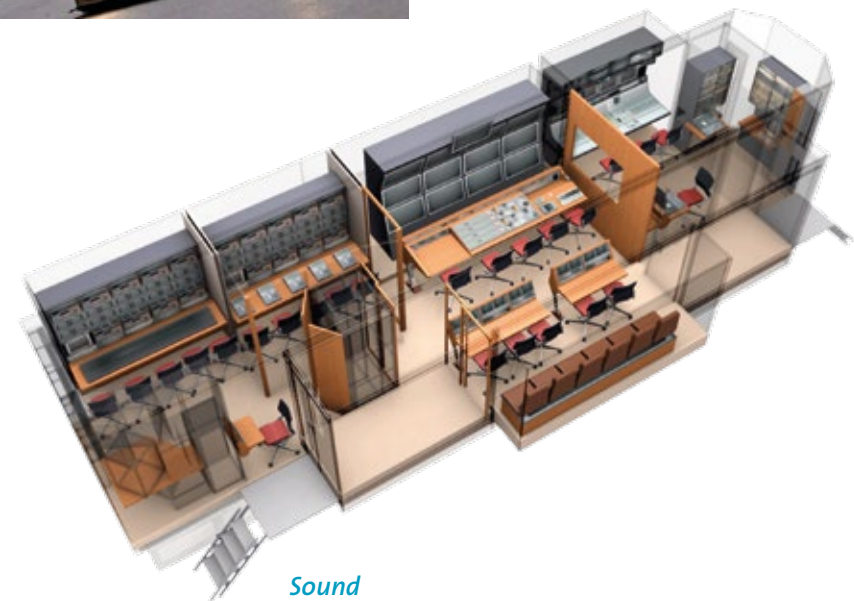
@CanonProNetwork



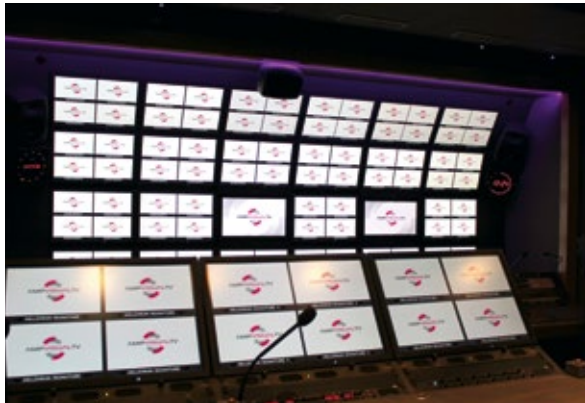
TECHNICAL
SYNOPSIS

*Millenium
Signature 10*

OB Van



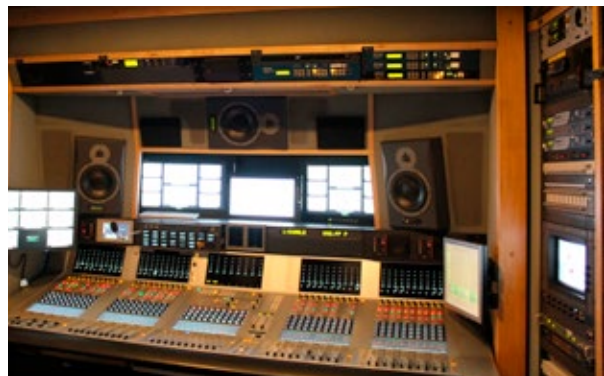
Production Area



Monitor Wall



Camera Shadin Area



Sound Area

Video

- Up to 30x Sony Cameras HDC-1500
- Wireless Camera Adaptors from Link
- Connectors on Cameras, CCUs and Cables: Lemo SMPTE Fibre
- Lenses from Canon, all Focal Lengths available
- Vision Mixer Control Room 1: Grass Valley Kayak 4,5M/E with internal 8-channel DVE
- Vision Mixer Control Room 2: Grass Valley Kayak 2,5M/E with internal 4-channel DVE
- Audio Monitoring: Genelec 5.1
- Character Generator: Chyron HyperX³
- Monitors Production Area: Sony and Eizo 25" with Quad-split
- Monitors Vision Area: Sony BVM-F170 OLED
- Up to 10x Sony HDCAM VTRs
- Up to 8x EVS LSM XT3 6ch Servers
- Digital Glue from Snell
- Video Controller: L-S-B VSM
- Video Matrix: Grass Valley Trinitix 384x480
- Video Measurement: Tektronix WFM-5000

Sound

- Audio Mixer: Studer Vista 8, 52 Faders
- Audio Mixer: Yamaha DM1000, 16 Faders
- Audio Router: Studer 256x256
- Audio Monitoring: Dynaudio, 5.1 Surround Sound with Trinnov Acoustic Correction
- Audio Effects: TC Electronics M6000 and DB8
- Microphones on customer request

Intercom

- Matrix: Riedel Artist 120x120
- 6 RTS 2-wire networks with 6-channel interface
- ISDN Codec: AETA Scoop

VIDEO by Lawo

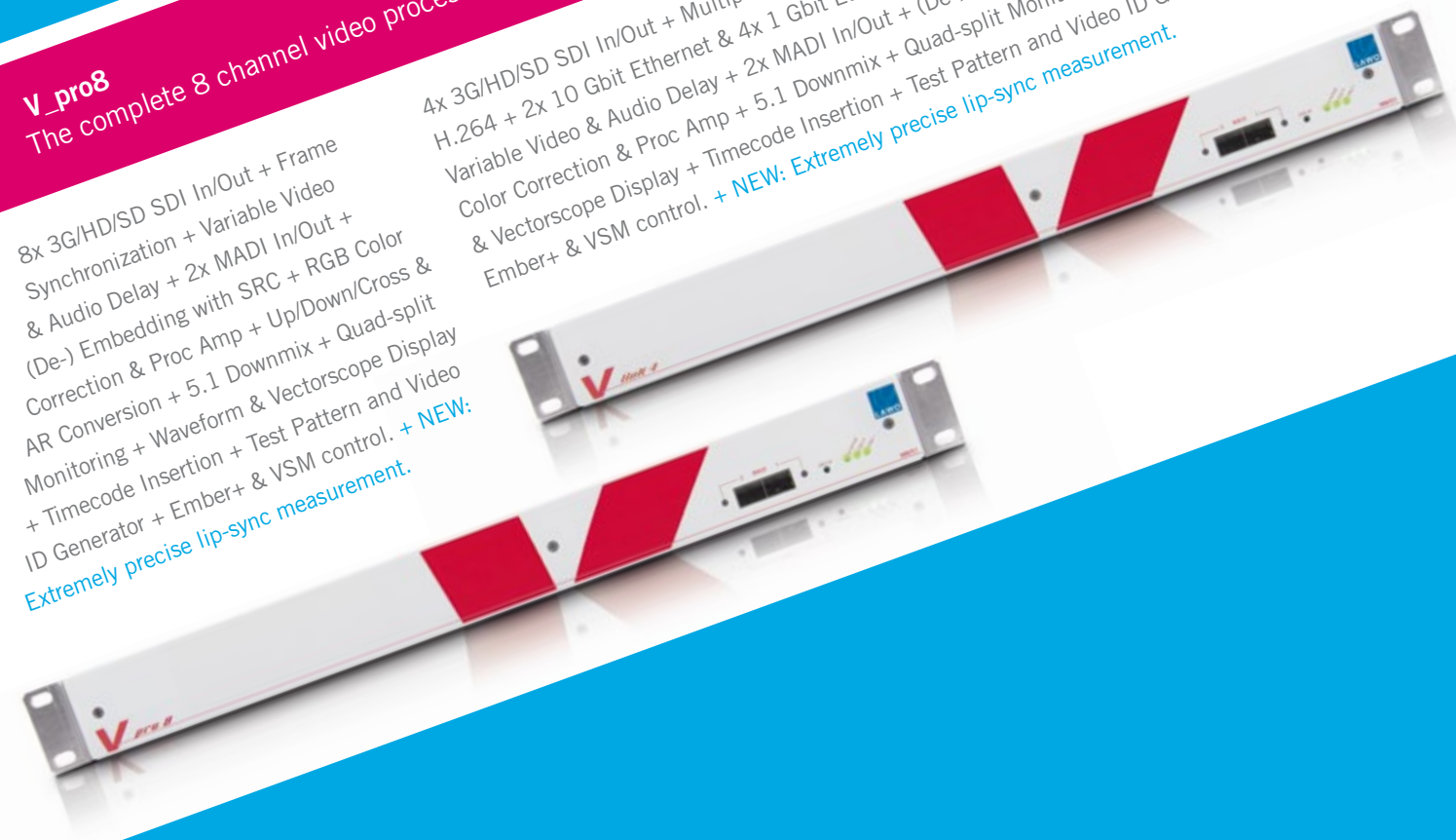
V_link4

The all-in-one video-over-IP solution.

V_pro8

The complete 8 channel video processing toolkit.

4x 3G/HD/SD SDI In/Out + Multiple video codecs incl. Raw, DiracPro, J2K, MJPEG, H.264 + 2x 10 Gbit Ethernet & 4x 1 Gbit Ethernet + Frame Synchronization + Variable Video & Audio Delay + 2x MADI In/Out + (De-) Embedding with SRC + RGB Color Correction & Proc Amp + 5.1 Downmix + Quad-split Monitoring + Waveform & Vectorscope Display + Timecode Insertion + Test Pattern and Video ID Generator + Ember+ & VSM control. + **NEW: Extremely precise lip-sync measurement.**



www.lawo.com



TECHNICAL SYNOPSIS

Fly 3

FlyPacks

Video

6x Sony Cameras HDC-300 or HDC-1500
Sony HDC-3300 on request
Vision Mixer: Sony MVS-3000
Character Generator on customer request
Monitor Wall: Sony OLED monitors
Multiviewers: Harris QVM-6800
Up to 10 slots are available / Any combination of VTRs and Servers is possible
Digital Glue from Snell
Multi Signal Processor: Lawo V__pro8
Video Matrix: UTAH 64x64
Video Measurement: Tektronix WFM

Sound

Audio Mixer: Yamaha DM2000 or Yamaha DM1000
Audio Monitoring: Genelec 1029A
Audio Effects: Delays & Reverbs
Microphones on customer request

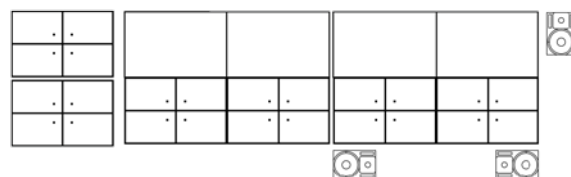
Intercom

Matrix: Riedel Artist 64x64 with wireless intercom system
2-wire interfaced RTS network
ISDN and IP Codec

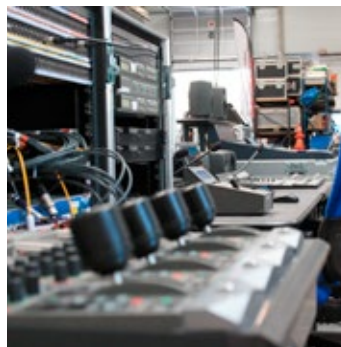
SloMo Area



Vision Mixer

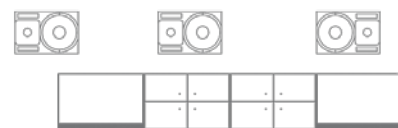


Camera Shading





Production Gallery



Monitor Wall



Sound Area



HD Production

TECHNICAL SYNOPSIS

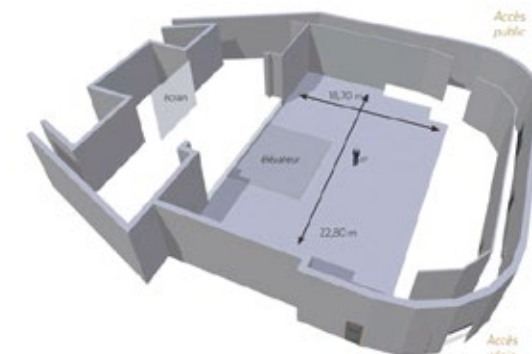
Gabriel

Studio



Studio Floor

Size: 430m²
Length: 18,7m
Width: 22,8m
Height to lighting grid: 5,0m
Audience seating capacity: 350 (max. 500 depending on layout)



Cameras

10x Sony HSC-300
A complete Range of Canon Lenses is available

Video Gallery

Vision Mixer Sony MVS-8000 3M/E
DVE Sony MVE-8000 4Ch or DME-7000 2Ch
Character Generator Avid DEKO
Up to 8x VTRs: Sony HDCam or any other format
Disk Recorders: EVS XT2 6Ch and 1x EVS XS 4Ch with Ingest to Avid Unity
Video Router: Snell 96x192
Multi format synchronizers, embedders/de-embedders, down/up-converters and cross-converters
Measurement Equipment: Tektronix Series WFM 5000

Audio Gallery

Audio Mixer: Studer VISTA 8 with 52 Faders
Audio Mixer: Yamaha DM1000 with 16 Faders
Audio Router: Studer 144x128
Audio Monitoring: Dynaudio
Microphones: Sennheiser wireless
Audio Effects: TC Electronic M6000 and M3000
Audio Workstation: SoundForge
Finalizer: Jünger B41

Intercom

Clear-Com Eclipse 64x64 Matrix
RTS 2-wire network interface
RX/TX Radios are from Motorola
Overline Network
Phonak Headset monitor



RF FACTORY is specialised in deploying bespoke RF solutions

From a simple RF camera to some of the most complex infrastructures requiring a fixed wing RF system or helicopters, helicopter shoots, optical fiber deployment, telemetry, radio intercom, long distance RF links, onboard cameras, GPS...RF FACTORY will deliver.



Bespoke solutions: AMP VISUAL TV imagines and integrates innovative and original technical solutions to obtain stunning images. RF FACTORY teams listen to and understand the client's expectations so whatever the event RF Factory can provide the optimal solution.



CROATEL

LIVE
PORTRAIT

OB Vans
Studios

UpLink
Playout

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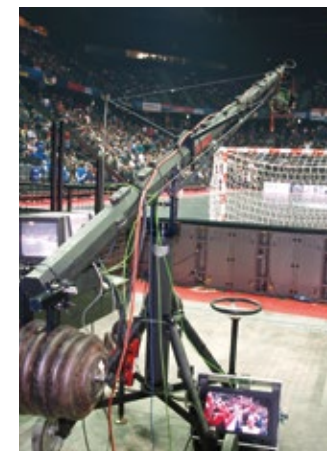


Your choice in satellite communications and TV production

CROATEL has been active on the market for over twenty years and currently has sixty employees. CROATEL is licensed by the Croatian Post and Electronic Communications Agency since 1995, certified by Croatian Register of Shipping as a service supplier for installation and maintenance of telecommunication services on the off-shore platforms and is ISO 9001 certified since 2007.

CROATEL was formed from members of Satellite group in Croatian Post and Telecommunications as the first licensed satellite service provider in Croatia. CROATEL offers HDTV production services as well as services for the professional satellite communications. CROATEL employs engineers with a degree from University of Zagreb, Faculty of Electrical Engineering and Computing, Department of Radio communications and Microwave Electronics.

The main CROATEL business activity is HDTV production. CROATEL has been working in the HD technology since 2007 and our technical TV production includes three HD OB vans with HD camera chains, super slow motion cameras, editing equipment, but also ownership and realization of HD playout system (technical facility) and ENG crews.





In February 2011, CROATEL launched the HD OB2 truck built on a Mercedes Axor chassis, prepared for UEFA standard, including eleven Grass Valley LDK-8000 World Elite cameras, as well as two LDK-8300 Grass Valley super slow motion cameras with XT2 EVS System. CROATEL HD OB2 truck is designed to host up to sixteen HD cameras and is fully equipped with a Miranda router system (112x96 matrix) and Densite 3 frame units, including all cross-converter boards, references and embedders/deembedders.

In May 2014, CROATEL launched the new HD OB3 truck built on a Volvo FH420 chassis, prepared for UEFA standard, including sixteen Grass Valley LDK-8000 World Elite cameras and two LDK-8300 Grass Valley super slow motion cameras. CROATEL HD OB3 truck is designed to host up to twenty HD cameras and is fully equipped with a Miranda router system and Densite 3 frame units, including all cross-converter boards, multiviewer, references and embedders/deembedders. In the HD OB3 truck, CROATEL is using a Grass Valley Karrera Video Production Center Switcher with K-Frame, a Studer Vista 5 M3 Digital Mixing System including Meterbridge and Vista Compact Remote, as well as a Riedel Artist digital matrix intercom system.

From the very beginning of the CROATEL HD OB truck projects, CROATEL decided at the outset that the vehicles should be designed on a professional level to be able to cover the most demanding sport TV production requests, such as UEFA matches. CROATEL is equipped and ready to fulfill all the requests in most regions of Europe. In that way we consider ourselves as the forerunners in HD production in our region. CROATEL offers HD/SD DSNB services on the territories of Croatia, Slovenia, Bosnia and Herzegovina, Hungary, Austria, Italy and other European countries as well. Earth stations CRO-005 HD and CRO-007 HD are approved by Eutelsat and EBU.

CROATEL company is responsible for 24/7 exclusive playout technical broadcast service of four sport channels in HD resolution that are broadcasted and down converted for SD with different HD/SD logos. All four channels are broadcasted from CROATEL's technical facility (TV studio) in Zagreb, Croatia. CROATEL playout system is consisting of a Pebble Beach Neptune Automation Playout System and a Grass Valley K2 Server and Ingest System. The Sport channels cover UEFA Champions League, UEFA Europa Football League, Croatian Football League, Italian Serie A Football, French Football League 1, NFL, NHL, CEV volleyball and EHF handball championships, athletics, boxing matches and so on.

CROATEL also has twelve ENG crews stationed at the head office in Zagreb and in Split, Rijeka, Osijek and Zadar with editing facilities. They have ten to fifteen years of experience and are fully trained to solve, in the shortest time possible, all the requests covering the area of the city of Zagreb, as well as the rest of Croatia and neighboring countries. Each crew consists of experienced cameramen and audio technicians with years of TV work experience in making news, reportages and documentaries. ENG crews use Sony HD camera systems including Sony CineAlta (HDW-F900R).

CROATEL is also the leading provider of fixed satellite services in Croatia and is responsible for technical documentation of microwave links, including a number of GSM microwave link installations between base stations, all around Croatia.

Live Production

CONTENTS



BMS at IBC:
Hall 1
Booth A.10

Wireless HD video solutions

BMS COFDM links give you greater control and lower latency with your live video – without sacrificing quality or reliability.

- Camera back and aerial transmitters
- Ultra low delay (40ms end-to-end)
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BMS products are used worldwide everyday to cover live events – Trust your production to BMS.

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Professional Wireless HD Video

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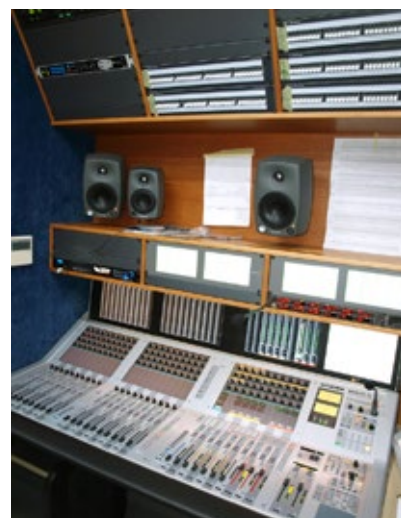


Vision Control



Vision Mixer

Production Area



Sound Area



Triax Cables



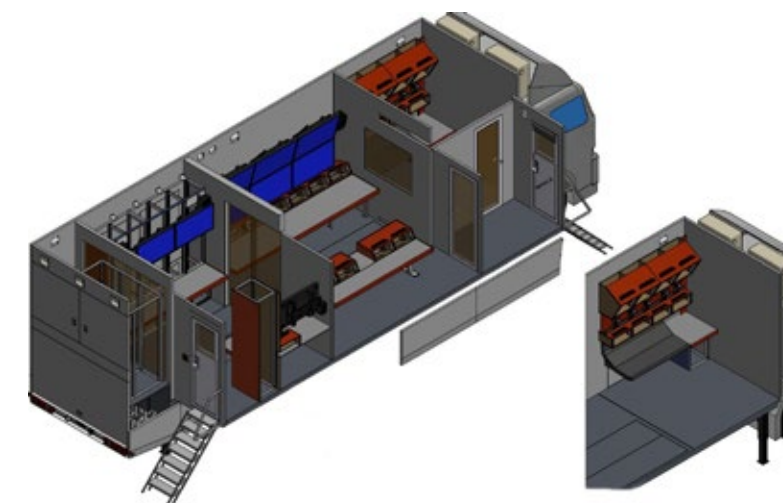
Equipment Rack



TECHNICAL SYNOPSIS

CROATEL HD OB 3

OB Van



Video

18x Grass Valley Cameras LDK-8000
 2x Grass Valley Cameras LDK-8300
 Wireless Camera Adaptors: Tandberg CT2011
 Connectors on Cameras, CCUs and Cables: Fischer Triax
 Lenses from Canon, all Focal Lengths available
 Tripods from Sachtler
 Vision Mixer: Grass Valley Karrera
 Character Generator: Caspar CG+ Croatel custom graphics
 Monitors Production Area:
 8x JVC GM-F4707, 1x Philips LED
 Monitors Vision Area: 1x Sony PVM-1741 OLED,
 5x Sony-A170 OLED
 Multiviewer/Splitter: Miranda Kaleido MX
 Sony HDCAM VTRs
 2x EVS LSM XT3 6ch Servers
 Digital Glue from Miranda
 Video Matrix: Miranda NV8144 144x180
 Video Measurement: Harris Videotek VTM-400

Sound

Audio Mixer: Studer Vista 5
 Audio Router: Miranda NV8144 128x112
 Audio Monitoring: Genelec 5.1 Surround Sound with
 RAM2 Amplifier Module
 Microphones from Sennheiser and Schoeps
 Audio Effects: Lexicon PCM 96
 Audio Measurement: TSL AMU1-BHD+1

Intercom

Matrix: Riedel Artist 64x64
 Wireless Talkback Equipment: Riedel
 ISDN Codec: Glensound

Coach Build

Length: 12,5m
 Width stowed: 2,5m
 Width expanded: 4,0m
 Height: 4,0m
 Weight: 26,5t
 System Integrator: TVC (Televizijos ir ryšio sistemos, UAB)

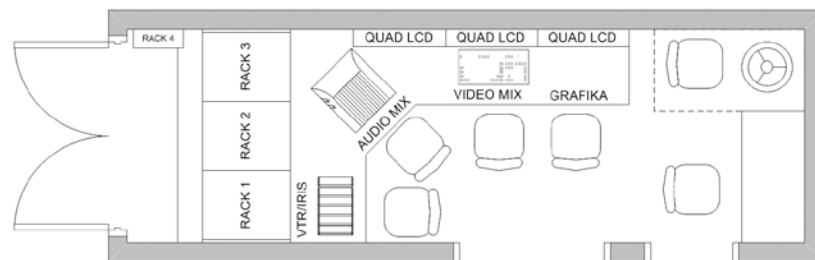
Inside View



CROATEL OBVan and DSNG



CROATEL DSNG in Istanbul



UpLink Equipment

Antenna: 1,8m Xicom XTRD-400, Miteq upconverters
 HD Encoders: Ericsson AVP3000
 HD IRDs: Ericsson RX8200
 Signal Monitoring: Agilent N9340

Video and Camera Control

Camera Models: Grass Valley LDK-8000
 Video Format: 1080i/720p
 Camera lenses: Canon lenses
 Vision Monitoring: Vutrix LDC
 Vision Mixer: Panasonic AV-HS300
 Audio Mixer: Yamaha O2R
 DiskRec: Grass Valley K2 Summit

Intercom

Matrix Type: GlenSound GS-FW024 Four Channel 4 Wire
 Wireless Talk-Backs: Kenwood

TECHNICAL
SYNOPSIS

UpLink



2014 FIFA World Cup

Formula 1
Grand Prix Du Canada

Sochi 2014 Olympics

What Did We Bring To These World-Class Sporting Events?

Forward-thinking intercom solutions.
 Audio and communication experts.
 45+ years of experience.
 In-field support team.
 Global partner network.

Mission or commitment, call it what you will. Our problem solving approach has enhanced collaboration and productivity for the world's most-watched sports productions.

We're your ideal communications partner and we'll support your productions every step of the way.

Now, just imagine what more you can accomplish with Clear-Com.



AN HME COMPANY

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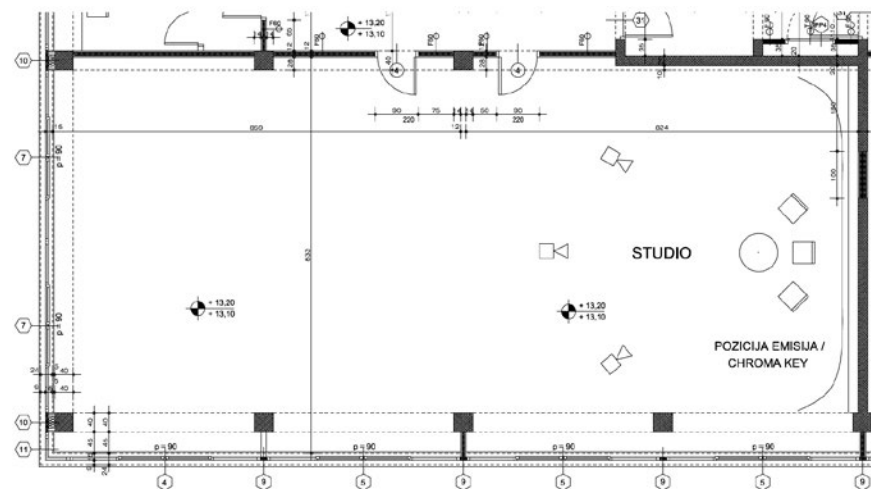
Dimmer Control



Vision Mixer



Production Gallery



Equipment Racks



Equipment Rack

Equipment Rack



Playout Rack



Europa League Preview



TECHNICAL SYNOPSIS

CROATEL Studio

Studio Floor

Size: 121m²
Length: 7,20m
Width: 16,8m
Height to lighting grid: 5,0m

Cameras

5x Grass Valley LDK-8000
A complete Range of Canon Lenses is available
Sachtler Tripods

Video Gallery

Vision Mixer Sony MVS-3000
Character Generator Caspar CG + Croatel Custom Graphics
Monitors in the Production Area: 8x JVC LCD, 2x LG LED
Monitors in Vision Control: JVC DT-V17G1
Multiviewer/Splitter: Miranda Kaleido-X16
VTRs: Sony HDW-2000
Disk Recorders: Grass Valley K2 Solo
Digital Glue from Miranda: Multi format synchronizers, embedders/de-embedders, down/up-converters and cross-converters
Video Router: Miranda NV5128 96x96
Signal Management: Miranda NV915
Measurement Equipment: Harris Videotek VTM-400

Audio Gallery

Audio Mixer: Yamaha DM1000 with 16 Faders
Audio Router: Miranda NV9000 32x32
Audio Monitoring: Genelec
Microphones: Sennheiser
Audio Effects: Lexicon PCM 96
Audio Measurement: TSL AMU1-BHD+1

Intercom

Trilogy Orator 64x64 Matrix
Wireless Talk-Back: Clear-Com Tempest2400
RX/TX Radios: Kenwood

Lighting Equipment

LitePanels LP-1X1 5600K Spot & Flood
48 Dimmer Panels
Lighting Console: Strand Lighting 200

PA Equipment

PA Mixer: Yamaha O2R
Audience Monitors: Genelec 8240A

CROATEL Playout Facility

CROATEL signed a contract with HDWIN that includes exclusive technical broadcast service of Arena Sport programs on both T-HT (Croatian Telecom) IPTV and DTH platforms. Starting January 1st 2011, four HD channels are broadcasted and downconverted for SD channels (Arena Sport 1, 2, 3, 4 HD and Arena Sport 1, 2, 3, 4 SD with different HD/SD logos).

All four Arena Sport channels are broadcasted from CROATEL's new technical facility (TV studio) in Zagreb, Croatia. CROATEL playout system was purchased from Pebble Beach Neptune Automation Playout System and Grass Valley – K2 Server and Ingest System.

Arena Sport covers UEFA Champions League, Europa Football League, Croatian Football League, Italian Serie A Football, French Football League 1, NFL, NHL, CEV volleyball and EHF handball championship, athletics, boxing matches etc.

**Basic System description**

Pebble Beach systems automation Neptune which is a fully featured automation system designed to automate the acquisition, media management and playout of TV channels
Grass Valley Aurora Ingest and Aurora Browse platform which supports 8 HD ingest channels K2 Summit and 2 ingest channels HD/SD K2 Solo with Dyno Controller
Grass Valley SAN storage with capacity of 32 TB
6 satellite receivers/decoders Ericsson RX8200
4 satellite receivers/decoders Tandberg RX1290
2 satellite receivers/decoders Tandberg TT1260
12 satellite antennas of 2,4m diameter, plus one 1,8m motorized antenna



OPTICAM SWITCH ENHANCES THE HOUSE OF LORD'S RESILIENCE



In order to work successfully within these constraints, certain operational methods have been deployed which include the use of robotic cameras within the House of Lords and House of Commons Chambers. Being small and discrete these cameras eliminate the need for camera operators to be present in the Chambers when Parliament is in session. This is because the pan tilt and zoom controls of the cameras are remotely operated from within the two TV control galleries, one for the House of Lords Chamber, one for the House of Commons Chamber.

The Broadcast unit is required to distribute a live feed of all official proceedings from within the Houses of Parliament. Although a schedule for business is published daily with approximate times for proceedings to take place, in practice the start and finish times of a session in either Chamber are not strictly defined and so the broadcast operation has to have a high degree of resilience in order to ensure readiness at all times. Considering the remote camera operation in particular there is a need for a "remote" switching solution to fulfil the resilience plan for these Chamber cameras. A solution was required to the problem of swiftly switching the cameras and their control circuits between the main gallery and a standby facility. The requirement was to improve the speed of switching over manual methods by eliminating the need to send operational

The Houses of Parliament are the seat of government for the UK and as such they maintain a high level of security, creating operational challenges for the Parliamentary Broadcasting Unit (PBU) and its contractor, Bow Tie TV.

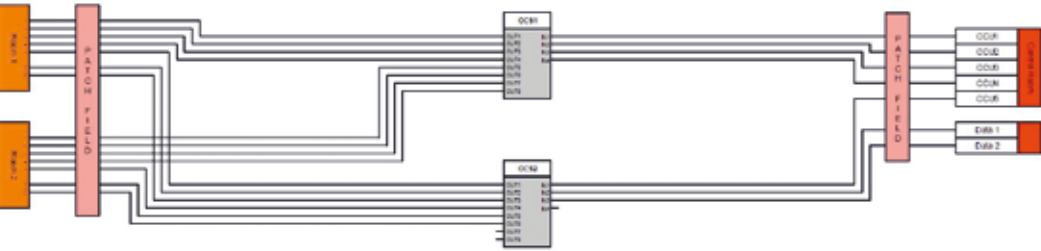
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TECHNOLOGIES

staff through security checks into high security areas in order to undertake manual patching, since practical experience indicated that this considerably delayed the switching process. The time taken was unacceptably high. Just like everyone else in the broadcast industry PBU had known of Neutrik for many years through the use of XLR audio connectors, but had been unaware of the fiber-optic solutions until they were given a live demonstration of the opticamSWITCH and its functionality on the Neutrik booth at BVE in London.

The argument which convinced PBU of Neutrik's opticamSWITCH was mainly the fact that it offered highly reliable, no-fail, remote switching of camera cable systems which were difficult to access during normal operational hours, due to the level of security which operates when the Houses are sitting.



Another big advantage of the opticamSWITCH is the fact that it's nearly maintenance-free, as hard-wired fiber connections eliminate the risk of contamination and frequent maintenance of patch cables and chassis. Despite PBU's requirements being somewhat different to the regular studio scenario for which the switch was designed to work, Neutrik's sales and design staff pulled out the stops to show the product is flexible enough to be adapted to their needs. Thanks to the proactive support of Neutrik's technical design team a suitable solution was found.

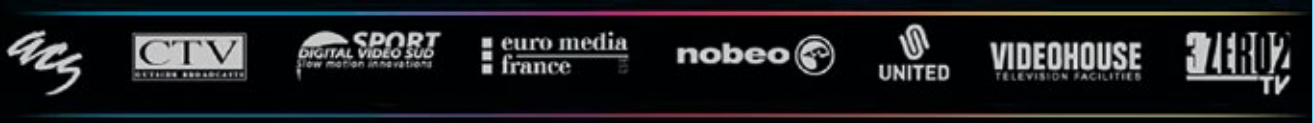
Installation and test phase

The physical installation of the opticamSWITCH was straightforward as the installed fibre cables were already terminated with LC connectors. Since the commissioning of Portcullis House in 2000 fiber-optic infrastructure has been installed across the Palace of Westminster, linking all parts of the operation. A challenge was that PBU's use of the system was different from the way the product had originally been conceived. Despite this a software update was provided so that the switching could operate the way PBU required in a simple and intuitive fashion using IP addressing. As an emergency system required for use under time-critical pressures, this was very important to them. The provided remote control software allows to speed up the switching process. Whilst the switch certainly does simplify the operation of re-routing cameras to the reserve facility, this action is only required when an emergency arises at the Houses of Parliament. Therefore the status indicators and automation are not likely to be required as part of their daily routines. However these features would prove extremely useful should such an emergency arise.

Since the system was installed in October 2013 in the House of Lords, program material is carried through it every day. The actual gallery change-over operation is a system for resilience which thankfully PBU has had not needed to activate as yet in a live situation. However, it has performed correctly whenever PBU has run system tests, giving them every faith that it will work successfully if required.



EURO MEDIA GROUP



LIVE PORTRAIT

OB Vans Studios
*Specialist Cameras
Wireless
UpLink
@-Car*



A European leader in broadcast services

Euro Media Group was created in 2007 by the merger of UBF Media Group, a Dutch company founded in 1982, and Euro Media Télévision, a French company founded in 1983. With a presence in seven countries (France, Belgium, Germany, Netherlands, United Kingdom, Switzerland and Italy), Euro Media Group is now the leader in the European audiovisual technical services market.

Euro Media Group provides its clients with a complete custom-made solution for the production and delivery of all Media content from broadcast through to on-line. As a technical integrator, the Group is active across the entire production process, handling every aspect from filming through to content delivery.

Today, Euro Media Group is one of the few independent providers in Europe known world-wide for its technical expertise. Focused on new media, Euro Media Group is recognized for its wealth of experience in international sports, live performances and entertainment production. Offering a large range of services, advanced knowledge in technology and a strong ability to innovate, the Group provides clients with its specialist knowledge, delivering a high quality service.

The Group owns the largest range of studios (89 stages) and 93 mobile units, providing its customers with the greatest collection of studios and fleet of mobile facilities in Europe.



**3ZERO2 TV**

VIA FINGEGNOLI 32/38
20093 Cologno Monzese (Milano)
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Sales Manager
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Mob: +39 335 575 264 7

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HP12 3QL

www.acsmedia.com

Antonia Wood

Tel: +44 1483 426 767
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enquiries@acsmedia.com

**CTV Outside Broadcast**

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Adam Berger

General Manager

Mob: +44 7860 876 037
adam.berger@ctvob.co.uk

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Bruno Gallais

International Business Development
Wireless Production Facilities

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Director Sport & Events

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Belgium

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www.videohouse.be

Chris Demeulemeester

International Projects
sales@videohouse.be



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Collectively innovative with a local approach

The Group continues to be at the forefront of the industry thanks to the expertise of its teams, its innovative strength and its skills, using the very latest in production equipment. As new communication technologies develop, today's broadcast industry is evolving fast. Euro Media Group is committed to anticipating, investing and adapting to how images are produced, processed and viewed. Our ability to capture market trends reinforces our position across Europe and increases our supply to within the industry. Euro Media Group is active across the entire production process, from filming through to final broadcast. Our teams are committed to their work, on every event, in every environment. Every day, Euro Media Group helps its customers deliver critically acclaimed programmes.

Our focus on innovation and our wealth of experience within live broadcasting and production enables the Group to offer pioneering services, bringing together the greatest and very latest technologies. Our strategy is inspired by our number one priority: to satisfy our customers' needs by creating a true partnership engaging all our expert knowledge and passion.

The world's leading supplier of specialist camera equipment

Delivering the Group's specialist cameras offering is Aerial Camera Systems (ACS), widely recognised as a world leader in the field. Since its beginnings over thirty-five years ago the company has built up an unequalled, award-winning reputation for quality and expertise in providing innovative and expert camera systems for projects world-wide. ACS has a unique inventory of specialist cameras available for rental. Its large inventory of equipment and constant investment in creating pioneering ways to capture events coupled with the highly skilled EMMY and BAFTA award winning international team of operators and engineers make ACS the number one provider for any specialist camera requirement around the world.

Leaders in aerial filming world-wide

Based in the UK at Aerial Camera Systems (ACS) is EMG's in-house Aerial Unit, providing award winning aerial filming with established and proven expertise in coordinating large international aerial projects. The Unit's specialist knowledge and relationships with many of the leading helicopter providers around the world means ACS are able to provide the one stop solution to any client's aerial filming needs. ACS has extensive experience of managing aerial projects of all shapes and sizes. Whether filming live coverage of world-wide sporting events or filming with Disney in the Masai Mara, ACS are specialists within the field and widely respected. The Aerial Unit's highly skilled operational team is acknowledged experts in their profession and its camera crew are critically acclaimed.

Slow Motion Innovation

Digital Video Sud was founded in 1997 to meet the needs of a developing market for the filming of sporting events. DVS is the only company in Europe to offer a highly specialist service for slow motion systems and "high speed" cameras for live TV. Our service includes: digital slow motion systems, Super-slow-motion and 'SuperLoupe' hi-speed cameras, slow motion dedicated fully-equipped OB-Vans, slow motion operators and experienced on-site certified technicians. Digital Video Sud is a leader in this high technology field and is recognized for its unrivalled reliability. The company was able to establish itself thanks to the continued presence of its expertise during large sporting events, such as Football World Cups and the Olympic Games. In May 2004, Digital Vidéo Sud invented the 'SuperLoupe' patented technology: a revolutionary slow motion camera system which can record 500 to a 1000 frames per second (instead of 25). DVS crews are used to working within the high-pressure world of live events and provide on-site 24/7 support for super-slow motion Sony HDC 3300 or Grassvalley 8300, hi-speed cameras and EVS disk controllers.



Driving innovation in wireless technologies

As a leader in digital RF and high definition broadcasting, Euro Media Group has been responsible for broadcasting large events such as the Tour De France and the Olympic Games. Euro Media Group is internationally recognized for its unrivalled skills in the field of RF broadcasts and its highly qualified and experienced staff. The Group's considerable production capacity provides its clients with reliable and user-friendly hi-tech equipment.

Livetools Technology is Euro Media Group's Swiss subsidiary dedicated to the research and development of RF broadcasting systems. The uniquely owned modulation we use allows us to provide all of the best RF links for our requirements, on which is based the quality of our broadcasts.

Fast and efficient, all the transmission you need

Euro Media Group offers fully managed end-to-end solutions for transmission via satellite. We provide HD and SD uplinks for live coverage of all type of events within seconds, in multiple formats, from the very exact place where the news occurs, to any part of the world. Smaller than regular production vehicles, our SNG OB trucks are ideal for rapid deployment of multi camera events allowing us to cover any event at short notice.



Innovative solutions for new contents, new screens and new functions

The expansion of the internet, of smart TV, smartphones and tablets has revolutionised the use of image functions. Euro Media Group accompanies the producers as well as distributors of contents in this deep transformation, at the same time ensuring quality rendering. Our Group offers extraordinary technical solutions, along with innovative and tailored management of audiovisual contents, destined to fit all new broadcast media.

From concept to delivery

From its beginnings, Euro Media Group has designed many of its production tools in-house. As a result, the Group has acquired an in-depth knowledge of engineering and integration of services and shares this expertise with its clients. Located at Videohouse in Belgium, the Projectbuilders department is much more than a simple technical developer and integrator. Projectbuilders is an innovative team of people creating unique designs in OB Units, Sound trucks and studios. Thanks to its specific operational experience and proven creativity, Projectbuilders knows how to fulfill its client's needs by paying attention to the smallest detail. This is a service of utmost precision, which is the key to its own success.



Sound Area



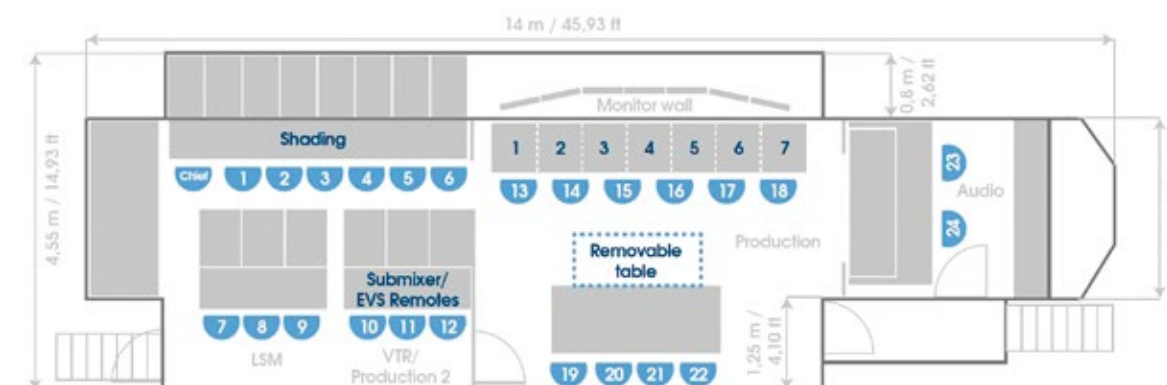
Vision Control



SloMo Area



Production Area



TECHNICAL SYNOPSIS

3zero2 OB1

OB Van



Video

14x Grass Valley Cameras LDK-8000
 2x Grass Valley Cameras LDK-8200
 2x Grass Valley Cameras LDK-8300
 Wireless Camera Adaptors: GigaWave D-Cam
 Connectors on Cameras, CCUs and Cables: Fischer Triax and Lemo Fiber
 Lenses from Canon, all Focal Lengths available
 Tripods from Sachtler and Vinten
 Vision Mixer: Grass Valley Kayak 4M/E
 Monitors Production Area: 32x JVC 20" LCD, 3x JVC 24" LCD
 Monitors Vision Area: 8x JVC 17" CRT, 12x JVC 20" LCD
 Multiviewer/Splitter: Zandar Predator
 VTRs: 2x Sony HDW-D1800, 1x Sony PDW-D1500, 1x XDS -PD1000
 6x EVS LSM XT2 6ch Servers, 2x AJA KiPro
 Digital Glue from Axon
 Video Matrix: Miranda NV8288 262x372
 Video Controller: L-S-B VSM
 Video Measurement: Tektronix WVR Series

Sound

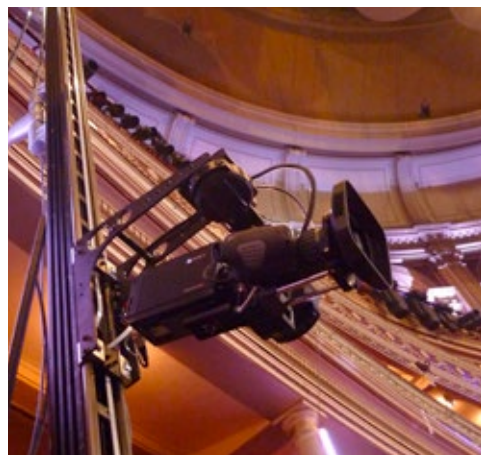
Audio Mixer: Lawo mc²66
 Audio Router: Lawo Nova 392x392
 Audio Monitoring: Genelec 5.1 Surround Sound / Fostex
 Microphones from Sennheiser, Wisycom, Soundfield
 Audio Effects: TC Electronic M6000
 Audio Measurement: DK Technologies MSD600M, RTW PPM1200

Intercom

Matrix: Riedel Artist 128x128
 Wireless Talkback Equipment: Motorola
 ISDN Codec: AEQ Eagle

Coach Build

Length: 14,0m
 Width stowed: 2,5m
 Width expanded: 4,5m
 Height: 4,0m
 Weight: 39t



ACS – the world's leading specialist camera company

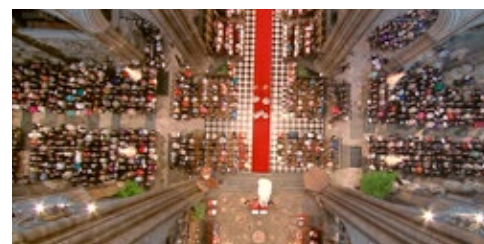
Founded over thirty-five years ago to provide the latest aerial cinematographic equipment to the film and television industries, Aerial Camera Systems (ACS) is now widely recognised as a world leader in the provision of specialist camera systems as well as aerial filming. We have a unique inventory of facilities available for rental which include high performance compact robotic heads to minicams, stabilised mounts, rail-cams, wirecams, tracking vehicles, underwater systems, aerial filming co-ordination services and the unique sponsor funded EyeFlyer blimp.

ACS' longstanding history within the aerial filming world is constantly growing and sees its dedicated in-house aerial unit co-ordinating and filming aerial projects world-wide. Over the years capability and capacity have increased to position the company as experts in aerial filming and aerial co-ordination with the ability to manage large and small-scale events with dedication, skill and a vast amount of knowledge. Having filmed in over 60 countries from all corners of the world, our extensive experience includes projects of all shapes and sizes, from a two hour shoot over London to the co-ordination of hundreds of hours of flying time with multiple helicopters for international events such as Euro 2012, 2012 London Olympics, 2014 Sochi Winter Olympics and 2014 World Cup. Access to the latest technology contributes to making all this possible. ACS is the largest independent owner of HD Cineflex V14s and has recently been appointed a Technical Assistance Agreement enabling the company direct access to training, maintenance, testing and upgrades for our fleet of Cineflex mounts.

Our in-house research and development team continues to develop and launch new concepts and products within the field of specialist camera facilities including the ACS SMARThead™ compact remote head ideal for music and entertainment shows as well as sports coverage and live events. Our tracks department boasts over a thousand metres of track in various configurations from flown to ground based, vertical to horizontal, small and large rigs with tracking speeds reaching up to 12m/second.

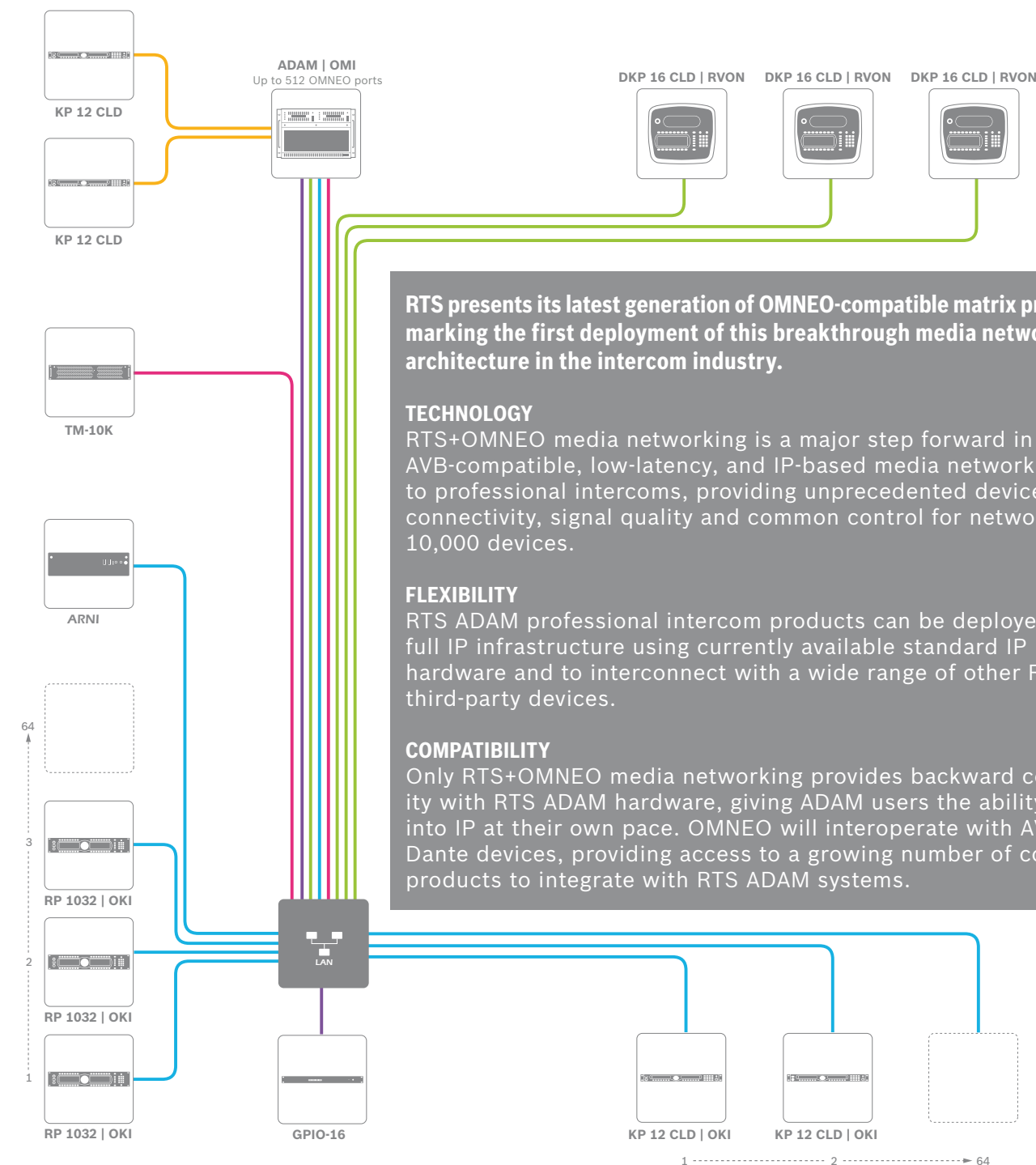
Our dedicated operations team are constantly planning and coordinating equipment and skilled crews throughout the world. Our crew's expertise speaks for itself. Among them, our international team of specialist camera operators have won 12 EMMYs including Best Cinematography, Outstanding Technical Direction and Outstanding Special Class Programme as well as a BAFTA Craft Award. It's the all round experience gained from the coverage of large and small projects both nationally and internationally that enables us to provide clients with a service that is continually reviewed, individually tailored and expertly managed to meet our client's exacting demands.

ACS is headquartered in the UK with a satellite office in Melbourne, Australia.



RTS + OMNEO

= the ultimate IP solution for intercom . . .



RTS presents its latest generation of OMNEO-compatible matrix products, marking the first deployment of this breakthrough media networking architecture in the intercom industry.

TECHNOLOGY

RTS+OMNEO media networking is a major step forward in bringing AVB-compatible, low-latency, and IP-based media networking options to professional intercoms, providing unprecedented device interconnectivity, signal quality and common control for networks of 2 to 10,000 devices.

FLEXIBILITY

RTS ADAM professional intercom products can be deployed with a full IP infrastructure using currently available standard IP network hardware and to interconnect with a wide range of other RTS and third-party devices.

COMPATIBILITY

Only RTS+OMNEO media networking provides backward compatibility with RTS ADAM hardware, giving ADAM users the ability to grow into IP at their own pace. OMNEO will interoperate with AVB and Dante devices, providing access to a growing number of compatible products to integrate with RTS ADAM systems.

Trunking data for the TM-10K

Ethernet OMNEO connections

Analog connections to the frames

Ethernet RVON connections

GPIO-16

Please visit the RTS website: www.rtsintercoms.com/omneo



TECHNICAL SYNOPSIS

EMF XXL1

OB Van

Video

Up to 30x Sony HDC-1500/2500 or Grass Valley LDK-8000 cameras
Up to 10x Sony HDC-3300 or Grass Valley LDK-8300 cameras
Wireless Camera Adaptors: Livetools HD Runner
Connectors on Cameras, CCUs and Cables: Lemo Fiber
Lenses from Canon, all Focal Lengths available
Tripods from Vinten
Vision Mixer: Grass Valley Kayenne 4,5M/E
Character Generator: Vizrt, Chyron or Ross
Monitors Production Area: 22x Vutrix 24", 2x Penta 24", 5x Eizo 22"
Monitors Vision Area: 6x Sony BVM-F170
Multiviewer/Splitter: Evertz
Up to 8x VRT positions: Sony HDCAM /XDCAM or Panasonic P2
Up to 12x EVS LSM XT3 8ch Servers
Digital Glue from Snell
Video Controller: L-S-B VSM
Video Matrix: Snell Sirius 840 480x692
Video Measurement: Tektronix

Sound

Audio Mixer: Studer Vista X
Audio Router: Snell Sirius 840 120 AES / 3x3 MADI
Audio Monitoring: 5.1 with K&H 310/810/120
Microphones from Sennheiser and Schoeps
Audio Multi-Track: Avid ProTools
Audio Effects: TC Electronic M2000 / M600 / DB4
Audio Measurement: RTW TM7

Intercom

Matrix: RTS ADAM 120x120
Wireless Talkback Equipment: Riedel
ISDN Codec: AETA hifi Scoop 4

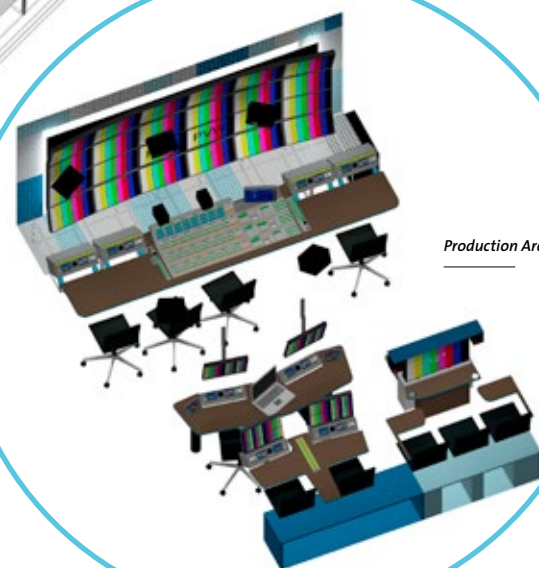
Coach Build

Length: 13,6m
Width stowed: 2,5m
Width expanded: 5,5m
Height: 4,0m
Weight: 44t

Sound Area



Production Area





A Worldwide leader in HD Wireless products

Livetools Technology is a Swiss company founded in 1997 (previously named Broadcast Services) which has a wide background in wireless TV production services worldwide. In 2001, Livetools introduced at NAB the first portable transmitter combining MPEG2 video compression, COFDM modulation and RF amplification in a package that can fit on most professional video cameras. This product called CARRY-CODER received 2 awards during the show and the success was immediate: for the first time, TV production teams became able to work without cables and without constraints (no need to point antennas). More than 120 systems of this type have been sold all over the world LIVE-RUNNER and providing a whole set of advanced features and unique concepts on the market. The associated high performance receiver, called LIVE-TRACER, was completed during year 2004 and made all LIVE-RUNNER advanced features available.

In 2006, LiveTools was aquired by SFP (Société Française de Production) and is now a member of Euro Media Group. Euro Media Group is Europe's leading provider of TV & Film facilities and services.

Last year Euro Media Group delivered:

81 days of RF race coverage
143 RF events
390 days of activity for the RF department
1800 requests for frequencies autorisations

Since more than 10 years, Livetools Technology SA develops, produces and sells electronic products for high-bitrate digital wireless transmissions. In broadcasting market, Livetools products are worldwide known for their quality, ruggedness and decoding of audio, video and data. The success of LVT transmission has been high-lighted at many cycling Tour de France and other Tour editions all over the world, during the Olympic games and other world class Events. The flexibility and modularity of our products allow airborne and terrestrial applications for sport events, entertainment but also civil, police and military applications.

In 2014 Livetools Technology add to the 3rd generation of HD Runner:

HD Tracer receivers,
HD Binder Finer Interface,
HD Master Data control unit and now
HD Grabber for data transmissions.



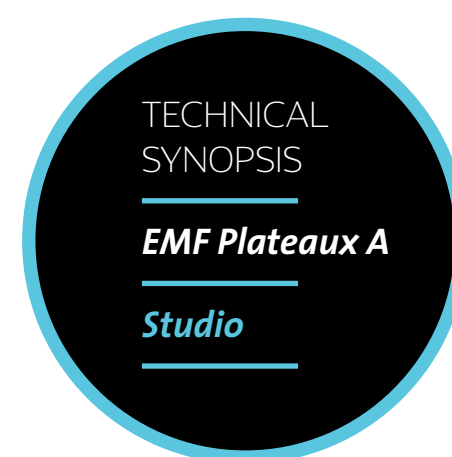
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Monitor WallProduction GalleryAudio DeskSloMo ControlAudio Gallery

Studio Floor

Size: 1,000sqm
Length: 33,4m
Width: 28,5m
Height: 12,70m

Cameras & Lenses

Up to 12x Grass Valley LDK-8000
A complete Range of Canon Lenses is available
Tripods and Pedestals from Vinten

Video Gallery

Vision Mixer Snell Kahuna
Character Generator Chyron Duett
Monitor Wall in Production: Mosaic Screen
Multiviewer from Evertz
Monitors for Camera Shading: Sony LCDs
VTRs: 4x Sony HDCam
Disk Recorders: 4x EVS XT2
Digital Glue from Snell
Video Router: Evertz 186 x 186
Measurement Equipment from Tektronix and Harris



Audio Gallery

Audio Mixer Studer D950
Audio Monitoring: Genelec
Microphones from Sennheiser

Intercom

Riedel Artist 96 x 96 Matrix

Lighting in the Studio

Lighting Equipment on demand, all brands are available
Total Dimmer Capacity on demand
Lighting Console on demand

PA in the Studio

PA Mixer: Yamaha

Monitor WallVision MixerStorageRouterProduction Gallery

TECHNICAL SYNOPSIS

**Your Smart
Studio**

Studio

**YOUR SMART
STUDIO**
By Euro Media France

Cameras

5x Panasonic AW-HE120

Video Gallery

Vision Mixer Ross Carbonite 2M/E
Character Generator Ross Xpression
Monitor Wall in Production: 11x 24" Samsung
Monitor for Camera Shading: 1x Marshall
Multiviewer from Ross Video
Digital Glue from Blackmagic Design
Video Router: Blackmagic Videohub 40x40
Measurement Equipment from Blackmagic Design

Audio Gallery

Audio Mixer Yamaha DM1000
Microphones from Sennheiser

Intercom

Matrix: Kroma Telecom 4x4
RX/TX: Kroma Telecom

Lighting in the Studio

Lighting Equipment: ARRI



S-TV DSNG F188

TECHNICAL
SYNOPSIS**S-TV SNG****UpLink****UpLink Equipment**

Antenna: 1,3m Diamond
 HD Encoders: Ericsson AVP3000
 HD IRDs: Ericsson RX8200

Video and Camera Control

Camera Models: 5x Ikegami HDK-79EX
 Video Format: 1080i/720p
 Camera lenses: on demand
 Vision Monitoring: 12 in Production
 and 5 in Vision Control
 Vision Mixer: Kahuna 1M/E
 DiskRec: 1x EVS LSM XT2 6Channel,
 2x AJA KiPro
 Digital Glue: Snell
 Video Matrix: Snell Pyxis 70x70
 Video Measurement: Tektronix WFM-5000

Audio and Intercom

Audio Mixer: Yamaha DM1000
 Audio Matrix: Freeway 32x32
 Audio Measurement: RTW
 Intercom Matrix: RTS Zeus 24x24
 Wireless Talk-Backs: Sennheiser
 ISDN Codec: AETA

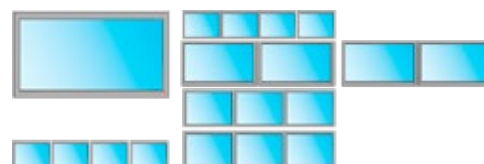
Coach Build

Length: 7,1m
 Width: 2,0m
 Height: 3,2m
 Weight: 4,6t

S-TV Inside View



S-TV Production Desk

NEWS COVERAGE
DOCUMENTARIES**18 x ZOOM**ONLY 5.5 MM WIDE ANGLE
PERFORMANCE
LIGHT-WEIGHT
COMPACTUNIQUE
HDTV
BUILT-IN DRIVE UNITS
STUDIO PRODUCTION
POWERFUL
ULTIMATE
VERSATILEON-SITE USE
LIVE SPORTS SHOOTING
MULTI PURPOSE**NEWS**COST EFFECTIVE
HIGH-PRECISION
ERGONOMIC

The new 2in1 lens HA18x5.5; be prepared



Standard and wide-angle in one lens. You will be prepared for whatever the day has in store for you. No heavy weight load and no need to change lenses. More information via QR-Code scan or at: www.fujifilm.eu/fujinon Fujinon. To see more is to know more.

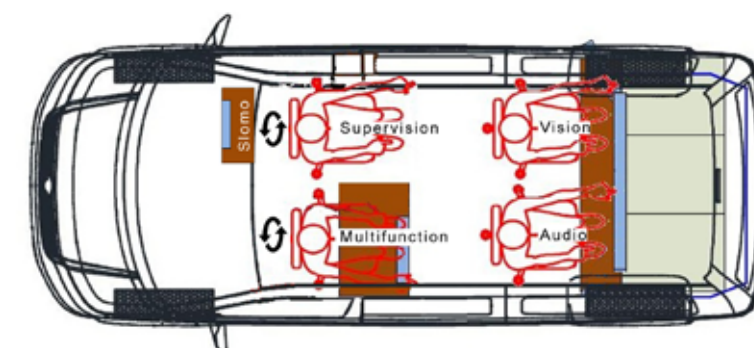
FUJIFILM Europe GmbH, Heesenstraße 31, 40549 Düsseldorf, Germany, Tel.: +49 (0)211 50 89-0, Email: broadcast_sales@fujifilm.eu



TECHNICAL SYNOPSIS

nobeo @-car

@-car



@-car®
Professional Live-Streaming
by nobeo GmbH

Production Area



SloMo Desk



UpLink + DownLink Antennas

Video

Up to 8x Panasonic P2 CamCorder
Teradek Bolt Wireless Transmission System
Lenses from Canon
Tripods from Manfrotto
Vision Mixer: TriCaster 8000
DVE is an integral part of TriCaster
Character Generator is an integral part of TriCaster
Monitors Production Area: EIZO 2x 24"
Multiviewers: 2x Splitter is part of TriCaster
4x AJA KiPro
HardDisk Drives are an integral part of TriCaster
Digital Glue from Lynx and Blackmagic Design
Video Matrix: Blackmagic Design Videohub 40 x 40

Audio

Audio Mixer: Yamaha CL1
Audio Monitoring: Genelec
Multi-Track Recording: JoeCo - BlackBox

Intercom

Matrix: Riedel Artist 16 x 16
Wireless Talk-Back: Kenwood
ISDN Codec: Mayah Centauri

Special Features

Riedel MediorNet stagebox for easy connection to set
Encoding: Digital Rapids StreamZ Live ABR
+ Teracue Enc-300

Coach Built

Length: 5,3m
Height: 2,5m (3,5m incl. UpLink)
Width: 2,3m
Weight: 3,5t
System Integrator: sono Studiotechnik
Coach Builder: Volkswagen

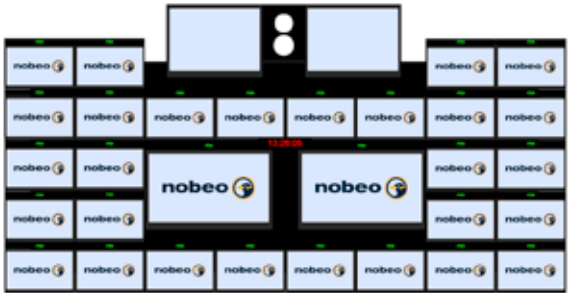


TECHNICAL
SYNOPSIS

nobeo Studio 8

Studio

Audio Mixer



Vision Mixer



Camera Shading



Equipment Room

Studio Floor

Size: 1.560,05qm
Length: 39,5m
Width: 39,5m
Height: 7,1m

Cameras & Lenses

8-10x Grass Valley LDK-8000 Elite
A complete Range of Canon Lenses is available
Tripods and Pedestals from Vinten

Video Gallery

Vision Mixer Grass Valley Kayak 300 HD 3ME
Character Generator: Ross Video Xpression
Monitor Wall in Production: Penta 26x 20" and 5x 37"
Multiviewer: Evertz
Monitors for Camera Shading: Sony 4x 17"
and Penta 3x 37"
VTRs: 6-8x Sony XDCam PDW-1600
Disk Recorders: 1x Grass Valley K2 (4/8 Channels)
Digital Glue from Lynx
Video Router: Grass Valley Trinitix
Video Controller: VSM from L-S-B
Measurement Equipment from Tektronix

Audio Gallery

Audio Mixer Lawo mc²go
Audio Router Lawo Nova73 HD 704 x 680
Audio Monitoring: Genelec
Microphones from Shoeps, Sennheiser Wisycom
Multi-Track Recorder: Avid ProTools
Audio Effects from Lexicon, TC Electronics, Urei and Neve
Audio Measurement: RTW TM3 / TM7

Intercom

Clear-Com Drake 4000 Matrix
Talkbacks are from Wisycom
RX/TX Radios are from Kenwood

Lighting in the Studio

Lighting Equipment from Desisti
Moving Heads depending on Customer Request
Dimmer Capacity 2,5kW and 5kW Circuits
Lighting Console grandMA 1 + 2

PA in the Studio

FOH Audio Mixers: Yamaha DM1000 and Yamaha PM5
Audience Monitors from d&b (E3 / E9)
Stagebox: Lawo Dallis

System Integrator

sono Studiotechnik



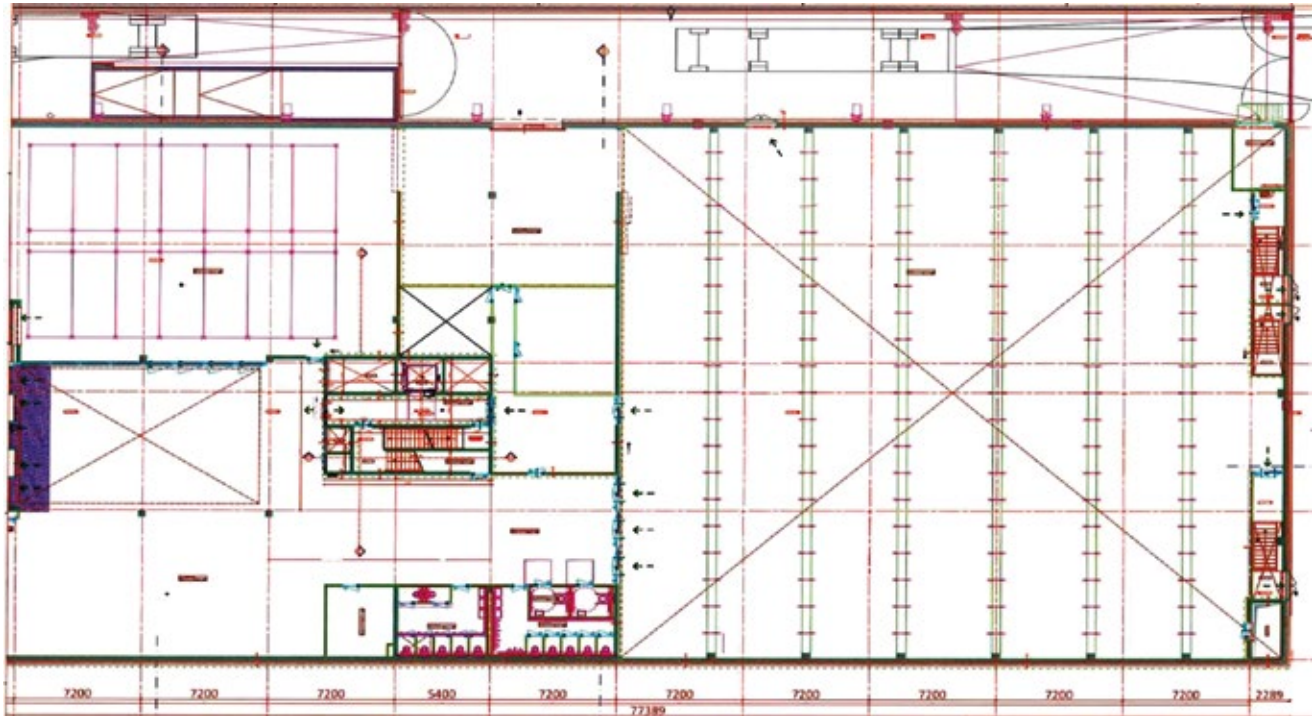
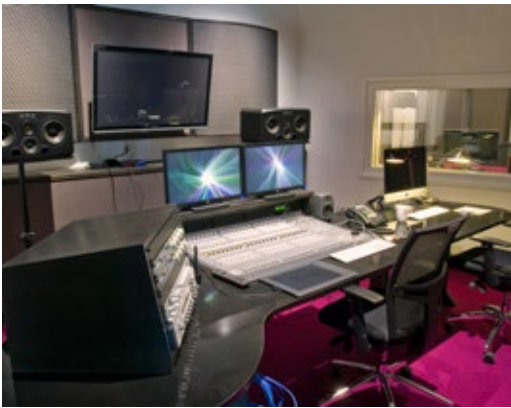
Mediahaven Studio 1



Mediahaven Edit Suite



Mediahaven Studio 2



TECHNICAL
SYNOPSIS

**United
Mediahaven**
Studio

**Mediahaven
Studio 1 and Studio 2**

Moermanskkade 107
1013 BC AMSTERDAM

Studio 1

Size: 1.159m²
Length: 35,9m
Width: 32,3m
Height: 10,15m

Cyclorama: 110m
Dimmer Capacity: 288x 2kW

Studio 2

Size: 364m²
Length: 13,9m
Width: 26,2m
Height: 5,0m

Dimmer Capacity: 96x 2kW



Production Area

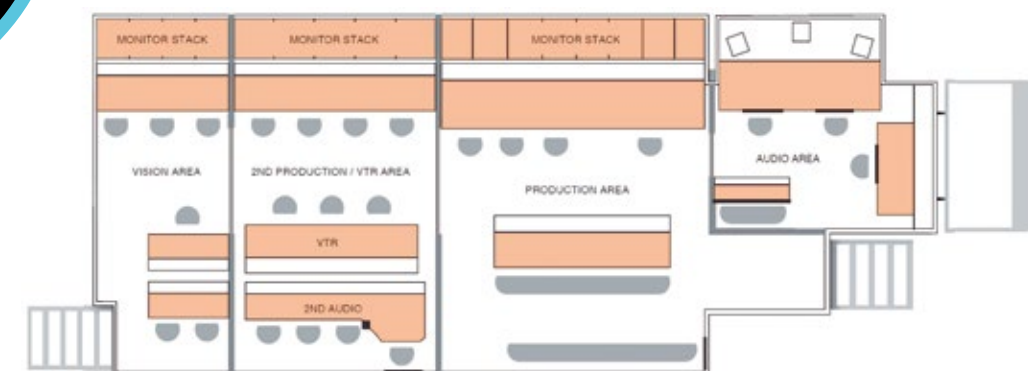
Monitor Wall



Sound Area



Vision Mixer

TECHNICAL
SYNOPSIS**United OB 14****OB Van****Video**

24x Sony Cameras HDC-1500 and 6x Sony Cameras HDC-P1
 Connectors on Cameras, CCUs and Cables: Lemo SMPTE Fibre
 Lenses from Canon and Fujinon, all Focal Lengths available
 Vision Mixer: Sony MVS-8000 4M/E
 Digital Multi Effects: Sony MVE-8000
 Character Generator: Harris Inscribe and Ross Xpression
 Monitors in Production Area: 8x 37" and 6x 23" Monitors from Penta
 Monitors in Camera Shading: HD2Line from Penta
 Multiviewers: Axon
 Up to 10x Sony HDCAM SR or HDCAM VTRs
 Up to 10x EVS LSM XT2+ 6ch HardDisk Recorders
 Digital Glue from Axon
 Video Matrix: Grass Valley Trinix 192 x 448

Audio

Audio Mixer: Lawo mc²66, 48 Faders
 Audio Matrix: Lawo Nova73 576 x 548
 Audio Monitoring: Adam SA3, 5.1 Surround Sound
 Audio Multi-track: Tascam X48 and Pyramix
 Audio Effects: TC Electronic M6000, Lexicon 300L

Intercom

Matrix: RTS/Telex ADAM 144 x 144
 Wireless Talk-Back: RTS/Telex
 ISDN Codec: YouCom

Coach Built

Weight: 40t
 Length: 16,5m
 Height: 4,0m
 Width (stowed): 2,5m
 Width (expanded): 5,20m



Main Production Area

THE MULTIFUNCTION CONTROL ROOMS FOR RTS

RTS “Radio Télévision Suisse” is part of SRG SSR, the national broadcasting company of Switzerland, and represents the French-speaking part of SRG. In the context of the transition of production from SD to HD, two new control rooms were opened for tender to migrate completely to HD production. **One** of it is a multifunction control room that can serve multiple studio floors and covers a wide range of productions. **The second** control room is dedicated to news production; parallel to the modification of the control room, the studio has been completely revamped as well.



Challenges and goals

Although both control rooms have similarities when it comes to technology and equipment, special, individual challenges had to be overcome for each project. The multifunction control room (multi-plateau) can work with a total of four different studio floors with allocations being carried out with a patch panel in the control room. The challenges consisted of the very high requirements for control room flexibility due to the diversity of the productions taking place (magazines, game shows, sports, cooking shows...) as well as special events.

Integration of the large number of additional equipment, which in part did not become available until older control rooms were decommissioned and thus could not be integrated until much later, in particular the StageteC router, represented a unique hurdle in itself. This could be achieved successfully only through close cooperation between BFE and the customer. The news control room (ACTU control room) is a special challenge, since an existent Sonaps Ingest and production (editing) system had to be integrated into the new infrastructure. Any tests in terms of control and integration could be carried out only in the evening or at night and within a very tight time frame.

Technology and design

The same technical components installed in the OB vans of the RTS are used in both control rooms to achieve a harmonization of the production sites and at the same time allow staff rotations.

VIDEO

In addition to Sony MV7000 4-level mixers, Sony cameras, Snell Sirius 800 routers and Snell Glue equipment, as well as Miranda multiviewers, a KSC Commander is used respectively as well, which forms the central control entity of each control room.

All components and the infrastructure are designed for 3G SDI; due to the distance between control room and equipment room of the multi-plateau control room, only fiber optic cabling is used in the monitoring area and the option of expanding the router with fiber optic interfaces has been utilized intensively as well. A Vidigo system has been added to the news control room.. The Vidigo Toolbox makes it possible to transmit any contents of a desktop via HD SDI and is thus ideally suited for the professional use of Skype within the control room. In this way, field reporters can be incorporated into the broadcast without requiring a camera crew or uplink technology on site.



MAINZ

VIENNA

DUBAI

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CONTENTS

Where Quality meets Innovation

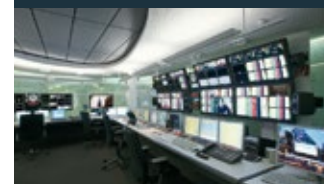
Television

Radio

OB Vans

KSC Product Line

Media Technology



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Germany

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Branch Office Dubai – Dubai Studio City
Commercial Building # 3 · Office number: 402
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Phone +971 504 437 677

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AUDIO

The primary component in the area of audio is the Stagetec router incl. the Aurus or Crescendo consoles. Since the multifunction control room can be combined with various studio floors and that these can also be controlled from an OB van, integrating the control room into the Big Switch concept was essential. Big Switch means that the body configuration of the individual base devices must be identical; each must have or accommodate the same equipment and the same configuration. This also applies to the Star router. Feedback takes place via the KSC, indicating which Stagebox is connected with the control room. The Big Switch concept is applied consistently across all SRG locations so that an OB van of the RSI can be used at the Geneva site as well.

A Yamaha DM 1000 Audio desk is intended as a backup for the main console in case of emergency.

In case of a Tellix (intercom) emergency, a stripped-down version can be used via the AUX channels of the Stagetec router to maintain communication.

The main audio monitoring of the control rooms is mapped centrally via KSC and Stagetec.

The furniture layout and arrangement was decided together with the customer and implemented by BFE at the production facility in Mainz. The layout of the furniture especially considered the wishes of the customer concerning an easy service experience and a corresponding individual furniture design tailored to the needs of the customers was developed specifically. Due to the special requirements concerning the acoustics in the audio control room, the furniture was built completely from wood.

Use of the KSC Product Line

Both control rooms have a self-sufficient redundant KSC Commander system developed by BFE. In addition to the KSC control panels for the router control (audio/video / control), there is also a KSC Pilot+ per system which then enables a graphical visualization of the conditions or the execution of switching commands with the help of a graphical interface. Complex system setups can thus be created via the KSC Pilot+ and are easily loaded again if and as needed, which minimizes the required preparation time in the control room. This is especially important in a multifunction control room since here completely different type of productions can follow one another within a very short time.

In addition to router switchings, tally monitoring, label in multiviewer, and mixer, the KSC also features the integrated processing of the IQ modular components, which can be used, for example, to trigger the video emergency switching directly via the KSC.

In the Newsroom in addition to these "classic interfaces," a link with an ORAD control system for studio virtualizations was implemented also, as well as a robotic camera system of the company Ross so that router switching can be carried out from both systems.

**Schedule and procedure**

After the contract award in July 2013, the specification and planning phase followed, which was completed by the end of September. Installation of the first control room was delayed until the middle of January 2014 due to scheduling conflicts. Since the handover of the tested control room was to take place already in mid-April, intensive preliminary tests were carried out in Mainz. Despite the very tight schedule between construction completion and control room handover, the multi plateau control room was able to broadcast the soccer World Cup 2014 as scheduled.

The specification and planning of the news control room ran parallel to the installation of the multi plateau control room so that it was possible to start the construction phase immediately afterwards. The control room is to start broadcasting at the end of August 2014.

About BFE Studio und Medien Systeme GmbH

BFE is one of the leading European broadcast system integrators. In its role as general contractor BFE designs and builds turnkey projects, based on a strict vendor and product neutral approach. Around 300 employees work in specialized fields such as software engineering, project planning, process and requirements analysis, workflow and IT solution design, installation, testing and training. In order to deliver turnkey solutions, the capabilities in the areas of electrical and mechanical engineering, joinery and assembly are also of relevance.

Based on these areas of competence BFE is operating the following divisions:

Video (TV)
Audio (Radio)
OB Vans
Media Technology

Over the past 30 years BFE has successfully delivered more than 1.600 broadcast and media systems integration projects in Europe, Asia, North Africa and the Middle East. More than 100 OB vans, designed, constructed and build by BFE have been delivered into nearly every part of the world.

RTS Radio Télévision Suisse

BFE
STUDIO UND MEDIEN SYSTEME GMBH



ISTIL STUDIOS

Global Broadcast Service

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Peremohy Ave, 44
Kyiv 03057
Ukraine

Tel: +380 44 2002 400
Fax: +380 44 2002 407

www.istilstudios.tv
info@istilstudios.tv

Contact Person

Aleksey Bryl'kov
Executive Director

LIVE
PORTRAIT

**OB Vans
Studios**

**Art Department
Rental**

**A Team of Experienced Professionals – Solid Partnership and Co-Production**

ISTIL Studios, one of the leading production companies in Ukraine, was founded in 2008 and falls under media assets of the ISTIL GROUP of companies. The core business of ISTIL Studios Production Company is the production of film and television products in HD and SD formats.



The filming pavilions of ISTIL Studios production company are a part of the studio complex, located in the territory of the A. Dovzhenko film studio and cover the area of over 2,000m².

The pavilions are equipped with first-rate lighting, audio and video equipment. The entrance for heavy truck transport and operating ceiling height up to 20 meters allow placing the most large-scale decorations and arranging shooting cameras on different levels.

ISTIL Studios filming pavilions rank among the largest ones in Europe, meet the most up-to-date technical requirements and allow shooting projects of absolutely all genres, formats and degrees of complexity.



ISTIL Studios collaborates with leading Ukrainian television channels and is a reliable business partner for many companies of the domestic and foreign media industry markets. ISTIL Studios offers to its clients and partners a complete cycle of creation of the video content, including the postproduction services. On the studio complex basis we can carry out assembly, editing, dubbing, titling and additional processing of the film footage of a future program. Innovative technologies, equipped video and audio assembly stations, experienced audio operators and picture editors will help to turn the shot video to the high-rated television and film product.

The up-to-date control room is equipped with the complete set of the best equipment for production of various television projects of the highest degree of complexity in HD and SD formats. The studio control room of ISTIL Studios allows live broadcasting from the studio filming pavilions and working in the program recording mode for further editing of the obtained video material.



High quality of the production output ensures producible construction of the channel, which allows working in the "tapeless production" mode and significantly reduces time for preparatory works before video program editing.

ISTIL Studios Art Department is a structural subdivision of the production company working in the directions of television design and creation of television decorations. In order to perform shoots, ISTIL Studios production company offers rental services of the studio complex, first-rate HD video cameras, lightning and audio equipment set, LED screens, comfortable make-up rooms and equipped workplaces for the television project creative and administrative teams, as well as video and audio editing stations, archive for storage of original materials and finished products, television journalistic package for location shoots, mobile television studio, which is unique in Ukraine, production and assembly of the studio decorations.

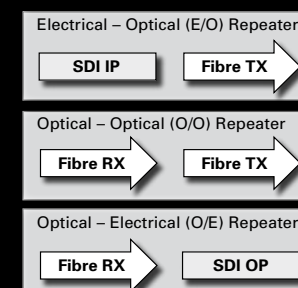
ISTIL's HD OB Trucks carry out live broadcasts and TV versions of the most spectacular, large-scale and important events. Sporting and political events and ceremonies, including UEFA Champions League and Europa League matches played in Kyiv, Donetsk, and Lviv; Red Bull sports tournaments; Person of the Year, TV Star (a people's award), and Teletriumph (a national television award) ceremonies, the International Film Festival "Molodist" opening and closing ceremonies, Shakhtar FC's 75th anniversary celebration, broadcasted live from the Donbass Arena, "Children's New Wave" contest, Crimea Music Fest, Speech of the former U.S. President Bill Clinton during his visit to Kyiv, Address of the President Viktor Yanukovych to the people of Ukraine and many more.

Global Broadcast Service company – partner of ISTIL group of companies – renders mobile television studio services.

FIBRE INFRASTRUCTURE FOR 3G / HD / SD-SDI, AUDIO, INTERCOM, ETHERNET AND MADI

TECHNOLOGY

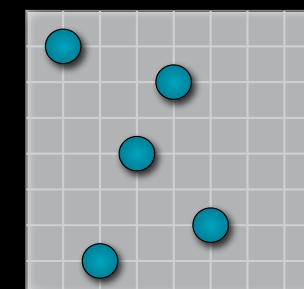
Media Conversion



- 3G/HD/SD-SDI to/from fiber video conversion
- Coaxial to/from fiber MADI conversion
- Selectable fiber transceivers
- Optional reclocking

Related devices:
Repeat48, Mux22, Route66

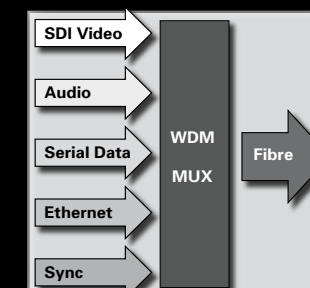
Routing



- 3G/HD/SD-SDI video as well as MADI, Optocore or 3rd party protocol routing
- Optocore Control software based routing
- 3rd party protocol routing control
- Unique Automatic Routing

Related devices:
Route66

Multiplexing



- CWDM or DWDM built-in multiplexers
- Up to 80 x 3G-SDI on single fiber
- Video, Audio, Data, Intercom and Sync on single fiber
- No bandwidth restrictions

Related devices:
Repeat48, Mux22, Route66, WDM Frame

Meet us at IBC Amsterdam
www.broaman.com | www.optocore.com
Hall 8, Stand C60

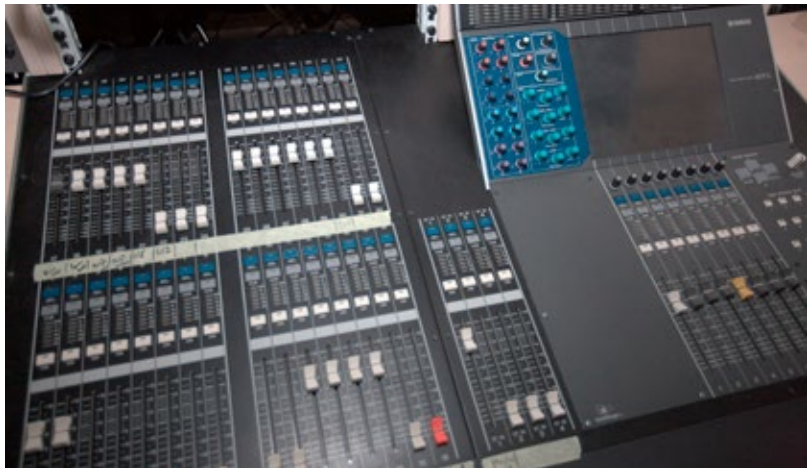


Production Gallery



Audio Gallery

Monitor Wall

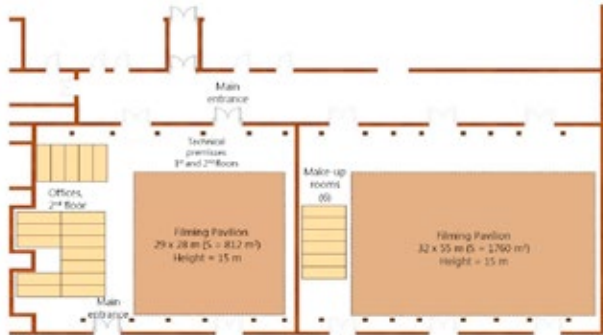


PA Mixer



Lighting Desk

TECHNICAL SYNOPSIS *Filming Pavilion* *Studio*



Studio Floor

Size: 1,760m²
Length: 55,0m
Width: 32,0m
Height: 14,0m

Cameras

10x Sony HDC-1550
Panasonic P2 CamCorder AG-HPX500E and AJ-HPX2100E
A complete Range of Canon Lenses is available
Tripods and Pedestals from Sachtler

Video Gallery

Vision Mixer Sony MVS-8000
Character Generator from Vizrt
Monitor Wall in Production: 3x Sony 52" LCDs
Multiviewer: Miranda Kaleido-X
Monitors for Camera Shading: Sony 14" LCDs
VTRs: Sony HDCam
Disk Recorders: EVS XT2 6Ch
Video Router: Network 128 x 128
Measurement Equipment from Leader

Audio Gallery

Audio Mixer Soundcraft Vi6
Audio Monitoring: Genelec
Microphones from Sennheiser
Multi-Track Recorder: Avid ProTools HD
Audio Effects on request

Intercom

Clear-Com Eclipse 96 x 96 Matrix
Talkbacks from Phonak
RX/TX Radios are from Kenwood

Lighting Equipment

Lighting Equipment from Desisti and ETC
Lighting Console: grandMA with 2048 DMX Channels

PA Equipment

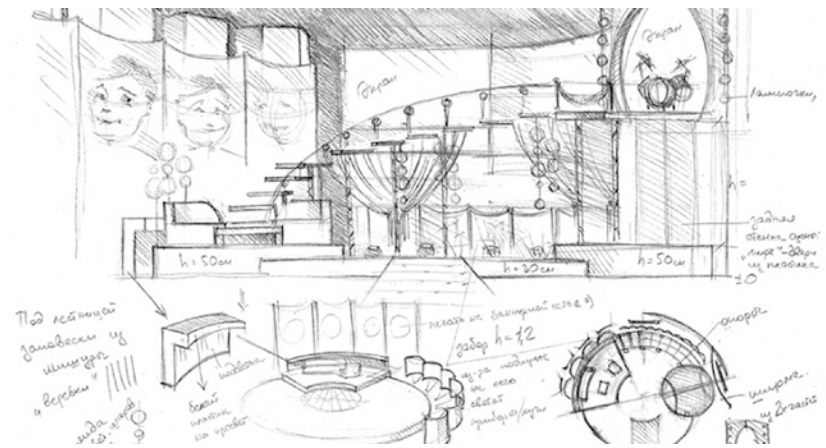
Yamaha PA Mixer

Special Features

ISTIL Studios offers to its clients and partners a complete cycle of creation of the video content, including the postproduction services.
ISTIL Studios are offering LED walls. The LED walls of ISTIL Studios are high-quality LED screens and LED lines with high resolution and excellent contrast range.

System Integration

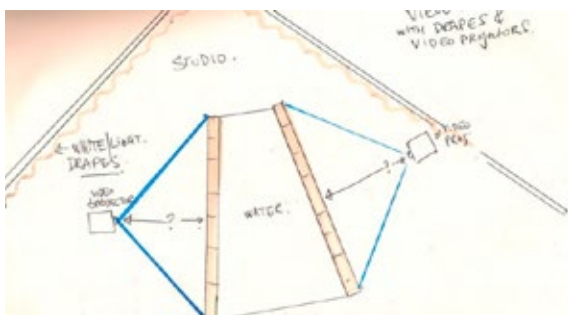
Filmotechnic / Alight / Operatorskie technologii



The television project visual decoration package includes creation of the concept of studio decorations, artistic and 3D sketched, 3D modeling, development of a constructive project, selection of production materials, assembly/disassembly of decorations, author's supervision.

Moreover, ISTIL Studios Art Department carries out requisite maintenance of projects, design filling of the studio space and further service of decorations supporting them in a proper condition.

High technologies, quality materials, own production shop, longstanding collaboration with independent production companies allow implementing a series of additional opportunities, including development of the television graphics package, virtual studios, production of decorations for shoots of films, advertisements and music video



ISTIL Studios Art Department is a structural sub-division of the production company working in the directions of television design and creation of television decorations.

The creative team of specialists consisting of 3-D visualization designers and the production editing team managed by the experienced Art Director with every project transforms into life own ideas and the customer's tasks in accordance with the program format.

Smart Active Monitoring SAM™

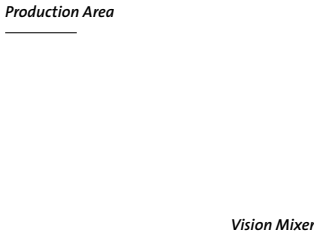
Designed
to adapt



Genelec is proud to release a new generation of SAM™ system: the most advanced and flexible monitoring solution for today's most professional users, for all types of production.

The new SAM system consists of two new compact two-way monitors, the 8320 and 8330, a new subwoofer, the 7350, an entirely new network unit and highly intuitive Genelec Loudspeaker Manager (GLM™) software version 2. The new SAM system helps the users to build easily a professional monitoring system which automatically adapts to different audio monitoring environments, anywhere anytime, and go for joy of achievement in their work.

GENELEC®



TECHNICAL
SYNOPSIS

ISTIL Grey

OB Van



Sony HDC Camera

Grey OB Van with Tender Truck

Vision Control

SloMo Area

Production Area

Vision Mixer

Audio Mixer

Sound

Audio Mixer: Studer Vista 8
Audio Router: Studer
Audio Monitoring: Genelec 5.1
Microphones from Sennheiser

Intercom

Matrix: Riedel Artist 128x128
Wireless Talkback Equipment: Riedel

Coach Build

Length: 16,5m
Width stowed: 2,5m
Width expanded: 4,5m
Height: 4,0m
Weight: 24,0t
System Integrator: Sony Professional Basingstoke, UK
Bild 10: Camera
Bild 11: ISTIL Grey OBVan with Tender Truck

Video

15x Sony HDC-1500
1x Sony HDC-3300
Wireless Camera Adaptors: Link 1500
Connectors on Cameras, CCUs and Cables: Fischer Triax
Lenses from Canon, all Focal Lengths available
Tripods from Vinten
Vision Mixer: Sony MVS-8000G 2,5M/E with 2nd control panel
Character Generator: Pixel Power
Monitors Production Area: Sony
Monitors Vision Area: 14" Sony
Multiviewer/Splitter: Harris
Sony HDCAM VTRs HDW-D2000
4x EVS LSM XT2 6ch Servers
Video Matrix: Miranda NVision 288x576
Video Measurement: Tektronix WFM7020



ISTIL Rental Department

Mixers, radio stations, microphones manufactured by such well-known brands as SOUNDCRAFT, YAMAHA, KENWOOD and SENNHEISER allow rightly considering the audio basis of ISTIL Studios as one of the best in the country.

For work in the filming pavilions and production of television products of the highest quality ISTIL Studios uses lighting equipment of the best production firms.

The studio complex light is presented by products of DeSisti and ETC companies – world leaders in production of professional lighting equipment and illumination systems of the best quality.

MA Lighting grandMA full-size control panel is the “heart” of the illumination complex. The light control panel, which is unique in relation to programming and control methods, is capable of managing a huge amount of traditional projectors, LED devices and moving-light type devices in real-time mode through the maximal number of channels. Owing to its characteristics and variety of performed functions, it is popular among television production professionals and designers all over the world.

Today LED panels are an integral part of the graphic design of the studio space and production decorations of the majority of television programs, from informative political talk shows to music entertainment projects.

The LED complex of ISTIL Studios are high-quality LED screens and LED lines with high resolution capacity, excellent contrast range and color rendition which allow visualizing the most varied and the most incredible production intentions.

In order to carry out location shoots outside the studio pavilion, the television journalistic package (TJP) is used. The TJP filming equipment of ISTIL Studios production company is presented by Panasonic AG-HPX500 and Panasonic AJ-HPX2100E digital video cameras.

Panasonic shoulder camcorders record video on P2 memory cards and are irreplaceable in creation of high-accuracy video products. The package also includes an accessory lens, stand, batteries, on-camera lights, charging device, microphone, lavalier, audio cables. If necessary, the TJP can be completed with a monitor, light filters, additional field sets of lighting and audio



Broadcast system integration

DSNG

DSNGs – designed and custom built for operational excellence using in-house expertise.



MSMS

Mobile Spectrum Monitoring Stations – we provide integration services for spectrum monitoring, direction finding and signals intelligence solutions to civilian, military and government agencies.



OB VANS

Outside Broadcast Vehicles – TVC have more than 30 years of experience in building tailor made OBs to meet the most exclusive needs and standards.



TV STUDIOS

TV studios – we offer latest technologies and cost effective solutions to create best systems for our customers.



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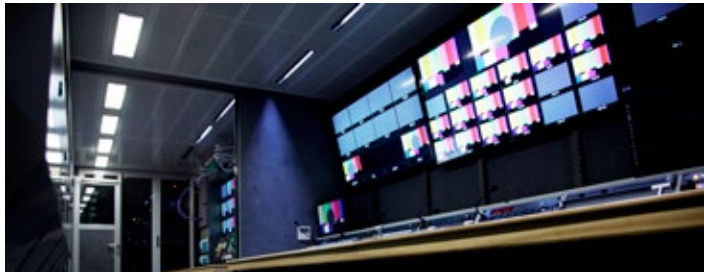


Visit us at IBC 2014
 Stand No. OE 109

RAI Amsterdam
 Conference 11-15 September
 Exhibition 11-16 September



Production Area



Sound Area



Camera Shading



Monitor Wall



Audio Mixer



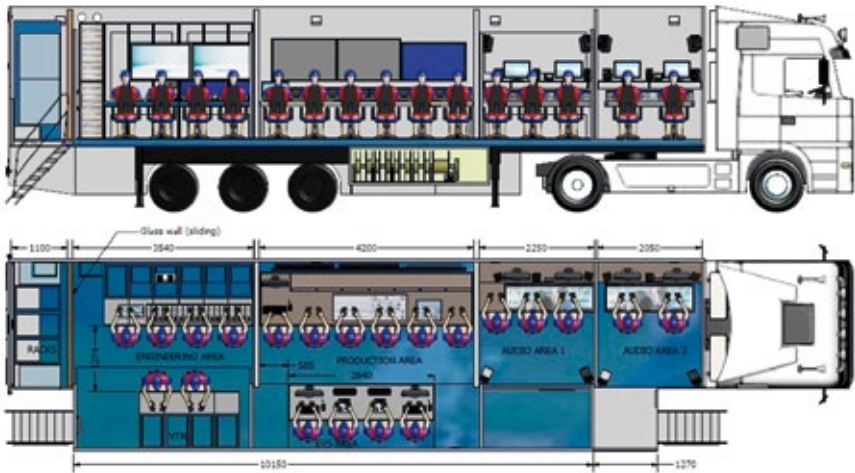
TECHNICAL
SYNOPSIS

ISTIL White

OB Van

Video

- 20x Sony HDC-1500
- Wireless Camera Adaptors: Link Research LTD
- Connectors on Cameras, CCUs and Cables:
- Lenses from Canon, all Focal Lengths available
- Tripods from Sachtler
- Vision Mixer: Sony MVS-8000 3M/E
- Character Generator: Vizrt
- Monitors Production Area: Samsung
- Monitors Vision Area: Samsung
- Multiviewer/Splitter: Miranda
- 2x Sony HDCAM VTRs
- 2x EVS LSM XT3 6ch Servers
- Digital Glue from Miranda
- Video Matrix: Network Router 128x128
- Video Measurement: Axon



Sound

- Audio Mixer: Soundcraft Vi6
- Audio Router: Soundcraft
- Audio Monitoring: Genelec
- Microphones from: Sennheiser
- Audio Effects: Omnitronic
- Audio Measurement: Axon

Intercom

- Matrix: Clear-Com Median
- Wireless Talkback Equipment: Clear-Com
- ISDN Codec: TBD

Coach Build

- Length: 13,4m
- Width stowed: 2,55m
- Width expanded: 3,75m
- Height: 4,0m
- Weight: 26,5t
- System Integrator: TVC (Televizijos ir ryšio sistemos, UAB)



ROBBIE WILLIAMS SWINGS BOTH WAYS

Williams' hammiest show to date complete with lashings of feather boas

Brilliant Stages continues its long-standing relationship with top showman Robbie Williams and the ever-inventive Ray Winkler and Ric Lipson of Stufish by its collaboration on the design and fabrication of the stage set for Williams' *Swing Both Ways* tour. The dazzling arena tour has seen Williams promote his new album across Europe from April to July, culminating in four dates at London's O2 arena, before it travels to Australia in September.

The Stufish stage is lavish and multi-layered, transforming in appearance from an Art-Deco hotel, to a 20's style club and a luxurious ocean liner, and is surrounded by a massive, curved Austrian drape, all of which set the tone for Williams' sumptuous Swing Era extravaganza and big band sounds. Brilliant Stages' Tony Bowern and its highly-talented CAD team were instrumental in bringing Stufish's vision to fruition, providing the multiple staging elements of this complex, multi-functional performance area. Fundamental to the set is a 1.8m high, 18.3m x 14.7m main stage with a deeply curved front edge and two additional levels – a mid deck and an upper deck – rising from it. These are built using over three hundred 2.4m x 1m decks supported on custom frame assemblies which use poles to transfer the extra weight of the upper layers to the layers below. The whole is built on a rolling frame with heavy-duty castors that support the extra weight of the layers above and allow the framework to be rolled into place

for faster setup. "We were mindful of creating a structure that would give the support required without looking ugly or showing too much framework," says Brilliant Stages' lead CAD designer for the project, Ollie Laight. "The result is a clean, minimalist look which allows the rear video screens to be seen through them." Preliminary and final plans for all load-bearing frames and support structure were passed to Brilliant Stages structural engineer, Malcolm Richards, who advised on structural integrity and gave clearance before construction commenced. The main stage front edge includes a step-down shelf and acoustic mesh, which accommodates space for PA sub-speakers and, like the mid and upper levels, fixing points for lighting. The stage is surmounted by a 14.7m x 9.59m lower base that follows the concentric outline of the main stage and is raised by 15cm using insert legs. A manually operated star trap is integrated into the main stage framework with built-in dolly wheels that allow it to be simply rolled into place and left in situ for the duration of the show.



Each deck level includes a curved handrail at the front edge and is connected by sweeping ornate performer treads on stage whilst linked backstage by rear access steps. These are a low profile solution of minimal construction to maximise the visual aesthetics and are easy to set and strike: "It is important that these features simultaneously look good and are practical for the crew," says Laight. "We also had to give them enough support while allowing room beneath for a set of rolling 'bleacher' steps, which are brought onto stage and locked into position with brakes, for Williams and a choir of children to sit on during the *High Hopes* number."

Upper and lower 'cabins' are formed between the three layers using scenic cladding suitable for a quick removal and change between acts. These are finished with additional 'ship' and 'Art Deco hotel' style quick-release fascia panels for the backline, lower and mid deck sections. Back down at stage level, Brilliant Stages designed and built stage-left and stage-right screamers, with access steps, on cantilever frames and two 300mm high tech decks. Like the main stage, these are on a system of rolling insert legs for easy deployment. A 1.2m high elliptical catwalk extends 18m from the main stage into the audience to a B-stage.



Brilliant Stages constructed the catwalk on rolling leg assemblies and built the B-Stage on custom-designed dollies with decks that simply fold out to form a platform at the correct height for the B-stage. "This had several advantages in that, not only did it save on framework, but the dollies are right there to hand when it comes to load out," says Laight. "What's more, with eleven dollies forming the sub-structure for the B-stage, there were enough to take all the main stage decks and some of the framework too. You can see how much time this saves the crew by not having to retrieve dollies from the car park before loading out. We always try to keep the crew happy!"

Lighting designer, Mark Cuniffe, planned to use uplighting around the front of the main stage, B-stage and catwalk to illuminate the performers and run content. Over 300 individually programmable lighting units were specified so, to make it easier for the crew whilst retaining the desired look, Brilliant fitted the fixtures into



a channel which was then pinned to the side of the deck for quick and easy connection. "It was quite intricate work on our part, but saves the crew huge amounts of time," says Laight. The catwalk is accessed from the main stage via two 'bridges' complete with access steps. As part of the audience stands inside the catwalk's span, Brilliant incorporated some cable management solutions to ensure no cables were within reach of the public. The finishing touches to the stage were added by scenic artist, Jacqui Pyle, who designed a silver and gold splatter finish over the treads, main stage, mid and upper decks. The whole was then given a protective top coat which was tested by a tap dancer prior to being given clearance! Masking drapes give the finishing touches to the front of the stage.

Brilliant Stages was also responsible for the scenic elements and 'gags' on stage, collaborating with Pyle to create moulded GRP 'ventilation funnels' for the 'ocean liner' which appear as period props on the upper deck and main stage. These are removed and stowed when not in use. Brilliant Stages worked with Air Artists to provide the ship's crowning glory of two large inflatable funnels which are supplied complete with fan and cart. "The funnels have to appear quickly from nowhere during the scene change so we decided that an inflatable was the fastest way to achieve this as well as solving the challenge of how to stow them," says Laight. The funnels are inflated by the fan in only 15 seconds and pack down into specially adapted sections of deck where they remain stored for transit. Aluminium frames with di-bond cladding slide into purpose-built slots that locate them around the funnels, adding rigidity and completing the look.

Above the stage, Brilliant Stages worked with drape manufacturers, J&C Joel, and control wizards, Kinesys, to supply the impressive 15m-drop Austrian drape complete with winch mechanism and control. The drape is curved to echo the shape of the main stage and all structural designs and prototypes were submitted to Richards who approved the technical recommendations made by Brilliant's Tony Bower and Kinesys's Andy Cave prior to manufacture. The final, but by no means the least, visual aspect of the set are three 'chandeliers', each with three tiers of 'crystals' which hang above this visual confection. Brilliant Stages created each chandelier fascia from a VAC formed plastic panel which conceals an LED strip (supplied and fitted by the tour's lighting supplier, Neg Earth) that illuminates it, and supplied it complete with truss fittings. "We experimented and prototyped the plastic to find the precise degree of frosting for the optimum result," explains Laight. "The whole project called for a considered degree of prototyping and a high degree of collaboration with designers and sub-contractors at every stage of construction for all the scenic elements. This is one of the aspects of a project that Brilliant excels at and enjoys, and one in which our team of CAD designers and structural engineers proves invaluable, especially on a fast turnaround such as this project."

"Forty-four shows later, the efficiency of the stage design and build has proven itself," says the tour's production manager, Steve Iredale. "Having Rick Worsfold, the tour's head carpenter, involved at the design phase with Brilliant proved invaluable, and his idea for the decking carts that formed the support structure for the B-stage was one of the inspired ideas for the stage construction.

"As always Brilliant has delivered a well packaged, beautifully finished product that has been one of the keys to the success of the Swing Both Ways Tour."

Digiturk



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Established in 1999, Digiturk began its digital television broadcasting services in 2000. As Turkey's first digital platform, Digiturk offers high-quality digital video and audio broadcasting services through its several television, radio, music and interactive channels.

By transforming and shaping TV viewing habits with the help of cutting-edge 21st century technology, Digiturk has successfully managed to remain as Turkey's leading digital platform. Digiturk ranks among Turkey's top technology investments and is widely acknowledged in Europe as a prominent digital platform.



Digiturk members are offered 231 channels, including 4 interactive and 56 radio channels, to choose from. Among these channels, there are 35 HD channels and 1 3D channel. Digiturk provides high quality audio and video broadcasting services to its customers via its rich content and solid technological infrastructure. Digiturk's vast product portfolio, including packages such as Start-Up, Documentary, Kids, SportPhile, News and the World, Music and Entertainment, Movies, TV Series, Super League and Sports Extra.



Digiturk made its major breakthrough when it acquired the rights to broadcast Turkish football league, which are subject to quite high prices, since the country has a great interest in football. Service eventually grew larger, and they added special channels for movies and series and such. It became HBO-like, since it had the resources to buy movies as well as many running/ended TV series earlier than cable channels. Lig TV is the official broadcaster of top sports organizations including Spor Toto Turkish Super League, English Premier League, Russian League, Brazil Serie A, Russian Premier League, Turkish Airlines Euroleague, Beko Turkish Basketball League, Turkish Basketball Cup, ATP Masters and Wimbledon Tennis Tournaments. Using the advance technological infrastructure, Lig TV, is one of the most informed and competent sports broadcasting televisions in the world. As the most viewed sports channel, Lig TV has performed the first HD, 3D and 4K live broadcasts in Turkey and made sports viewing more enjoyable for sports fans.

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Monitor Wall



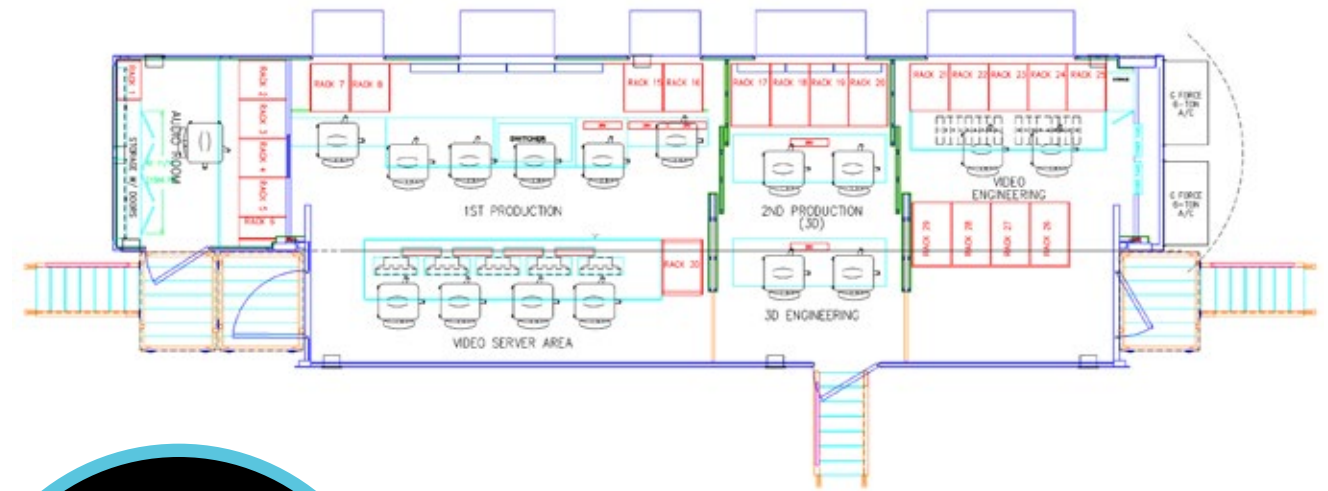
Vision Control



Production Area



Sound Area



TECHNICAL SYNOPSIS

Digiturk

OB Van

Video

16x Sony HDC-1550
 3x Toshiba HD Goal Cameras and Beautyspot
 2x Sony HDC-3300
 1x I-MOVIX High Speed Camera
 Connectors on Cameras, CCUs and Cables: Draka Triax cables with Fischer connectors
 Lenses from Canon, all Focal Lengths available
 Tripods from Vinten, Steadycam System: Basson Steady Siver Arrow 925
 Vision Mixer Main Production: Sony MVS-8000GSF
 Monitors Main Production: 15x Sony LMD-2450 with Evertz Splitters
 Vision Mixer Second Production: Sony MFS-2000
 Monitors Second Production: 9x Sony LMD-2450 with Evertz Splitters
 Character Generator: Harris Inscribe
 Monitors Vision Area: 5x Sony LMD-2050 with Evertz Splitters
 Up to 6 VTRs: Sony HDCAM or Panasonic DVCPro50
 5x EVS LSM XT2 6ch Servers (60h @ 100Mbps)
 Digital Glue from Harris
 Video Matrix: Harris Platinum 256x256
 Video Measurement: Harris Videotek VTM-400

Sound

Audio Mixer: Lawo mc²66
 Audio Router: Harris Integrator 96x96
 Audio Monitoring: Genelec 5.1 Surround Sound
 Microphones from Sennheiser wireless and Sony dynamic wired
 Audio Multitrack: Tascam X48
 Audio Measurement: Harris

Intercom

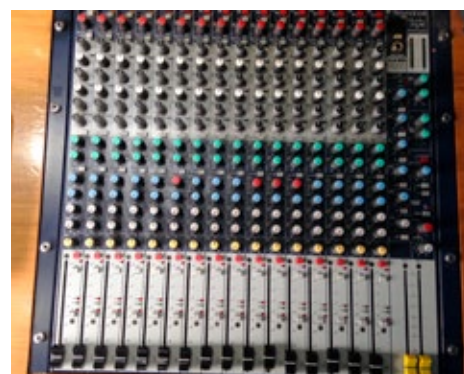
Matrix: Riedel Artist 64x64
 Wireless Talkback Equipment: Riedel RiFace

Coach Build

Length: 13,5m
 Width stowed: 2,5m
 Width expanded: 4,0m
 Height: 4,0m
 Weight: 29t
 System Integrator: Sony Professional Basingstoke



MANY
QUESTIONS?
ONE
ANSWER!
IBC STAND 3 A 63



UpLink Equipment

Antenna: Offset Gregorian
HD Encoders: ATEME CM5000 (MPEG 4:2:2, 10 Bit)
HD IRDs: SNG-1 Ericsson RX1290 / SNG-2 ATEME DR8400
Signal Monitoring: AVCOM PSA-37XP

Video and Camera Control

Camera Models: Sony PDW-700
Video Format: 1080i
Camera lenses: Canon YJ20x8.5BIRS, Canon YJ13x6BIRS,
Canon MS-21
Vision Monitoring: Sony LMD-1750W
Vision Mixer: SNG1 Sony DFS-800 / SNG-2 Sony BRS-200PR
Audio Mixer: SNG-1 Yamaha MG32/17 / SNG-2 Soundcraft GB
2R 16
VTRs: SNG-1 Sony PD-1000 XDCAM / SNG-2 Sony
PDW-HR1 XDCAM

TECHNICAL SYNOPSIS

Digiturk HD SNG-1
Digiturk HD SNG-2

Wireless

Intercom

Matrix Type: Clear-Com PL Pro MS-232

Special Feature

Extra Downlink Antenna: SNG-1 Kathrein / SNG-2 NETA



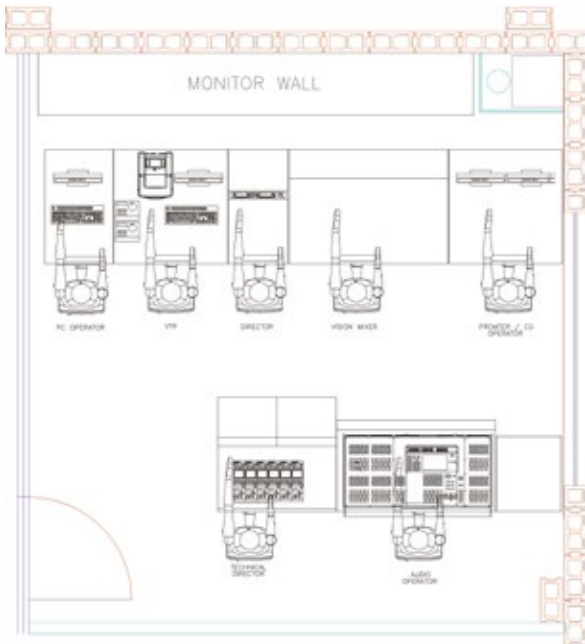
Production Gallery



Equipment Room



Camera Shading and Audio Mixer



System Rack

Studio Floor

Size: 400m²
Length: 20m
Width: 20m
Height to lighting grid: 9,0m

Cameras

6x Sony HXC-100 HD
1x Sony BRC-Z700 HD
A complete Range of Canon Lenses is available
Draka Triax Cables with Fischer Connectors
Tripods and Pedestals from Vinten

Video Gallery

Vision Mixer Sony MVS-8000
Character Generator: Orad HDVG HD
Monitors in the Production Area: Sony FWD-S42H1
Monitors in Vision Control: Sony LMD-1751
Multiviewer/Splitter: Harris Quad
VTRs: Sony XDCAM PDW-HR1
Disk Recorders: Grass Valley K2 Solo
Digital Glue from Harris
Video Router: Grass Valley Concerto 128x128
Measurement Equipment: Harris Videotek VTM-400



Audio Gallery

Audio Mixer: Yamaha M7CL/48
Audio Router: Grass Valley 128x128
Audio Monitoring: Genelec
Microphones: Sennheiser

Intercom

Clear-Com 96x96 Matrix
Wireless Talk-Back: Clear-Com Tempest2400

Special Features

VizRT Graphic system for touch screen applications
2 x Wacom 21.5" interactive pen displays
1 x 58" Panasonic Touch Screen Monitor
1 x 42" Touch Screen Monitor

EPIC SCALE, PRECISION SOUND

©photo luk monsaert

SENNHEISER DIGITAL 9000 CAPTURES THE SOUNDS AND EMOTIONS OF "14-18" SPECTACLE-MUSICAL

The Benelux countries are rapidly making a name for themselves as a hotbed of musicals produced on a giant scale. As "Soldaat van Oranje" continues to wow Dutch audiences in a former aircraft hangar, a new production, "14-18", is now doing the same in a similarly vast Belgian venue – De Nekkerhal in Mechelen. The production brings the grim reality of Flanders fields to life with an incredible level of intensity and immediacy for the audience, a spectacle helped greatly by Sennheiser's flagship Digital 9000 wireless microphone system. Set in Western Flanders during the Great War, 14-18 traces the fortunes of three young soldiers caught up in one of the most ruthless and bloody struggles in European history. This latest production from global entertainment company Studio 100, Frank Van Laecke, Dirk Brossé and Allard Blom takes place in a venue measuring 300m long by 60m wide. In addition to the scale, everything about this production is innovative – from the seating to the set, both of which move, to the use of the most cutting edge audio technology. Here, a starring role is played by Sennheiser's Digital 9000 Series microphone system.

Audio in the live show

The audio system was designed by Mark Luyckx and Guido Olischlager, who is also front-of-house and monitor engineer for the show. He devised a system that seamlessly delivers sound to the 1900-strong audience that sits on a large mobile bleacher, which moves backwards and forwards to create a real sense of immersion in the production. The story is complex and frequently moves between timeframes, so it is highly dependent on clarity, making Guido's choice of the Digital 9000, along with associated antennas and antenna distribution combiners custom-designed by Sennheiser Benelux, integral to the production's success.

The 14-18 musical staged in Mechelen, Belgium, has met with great acclaim by critics and audiences alike (© Studio 100 NV)



The stage design uses huge movable elements, which are mostly made of metal, making a special antenna solution for the wireless necessary (©Luk Monsaert)

"I attended the 9000 Series launch at the end of 2012 and was very impressed that it doesn't compress the audio in any way," he says. "With this production we wanted the signal chain to be as clean as possible, with no A/D and D/A conversion to compromise the audio quality. Basically it is digital from the Sennheiser vocal microphones right through to the system amplifiers."

With a production of this size that features a lot of action, including multiple actors running around, moving objects and clapping, complex moving scenery, the moving bleachers and even a horse on stage, there was the potential for the show's 32 microphones to pick up a lot of unwanted noise. But the Sennheiser 9000 series means that the system delivers consistently clear, high quality audio.

"If the audio is compressed, all the other sounds going on are com-



NEUMANN AND SENNHEISER DIGITAL MICROPHONES USED FOR THE RECORDING OF THE MUSIC SCORE

pressed and can come down the microphone as loud as the voice you want to amplify. But the 9000 Series' lack of compression means it delivers exceptional separation between the sounds you want and those you don't," says Guido. "It's a very good system. I've done a couple of musicals with other brands and there was always trouble with the RF, but this has been great. We are doing ten shows a week and have had no drop-outs, no RF problems, no broken belt packs, no broken mics – nothing. And the support from Sennheiser Benelux has been invaluable."

In order to cover the large stage area with wireless, Sennheiser Benelux' technical team designed and developed a unique antenna distribution system. "In total, we use two directional and six omni-directional antennas. Thanks to this custom-made distribution system, we've really played it 'safe' and have an optimally reliable set-up," says Christophe Van Den Berghe, Sales & Marketing Director at Sennheiser Benelux.

The musical brings the tragedy of the Great War to life

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FOH engineer Guido Olischlager played a vital role in the design of the audio system. He is pictured beside the rack of Digital 9000 receivers, 2000 IEM transmitters and Sennheiser Benelux' custom-built antenna combiners

“This reliability was needed to anticipate all the required décor setups of the movable elements, which are massive metal reflectors in the large staging area. Knowing that Mechelen is situated in an area where RF traffic is very dense – including the production’s own requirements – we configured the system in such a way that we can switch in a broad spectrum, allowing us to change frequencies if needed. The Sennheiser Wireless Systems Manager (WSM) used during the production is also MAC-compatible and takes on full control of all Sennheiser wireless series.”

Pre-recorded material

Originally, there were plans to have a full band playing live in an orchestra pit but when the stage design evolved to include a host of moving elements, this idea was discarded. Instead, the renowned Galaxy Studios in Belgium was tasked with the pre-recording of both the orchestra and the choir. The 70-piece Royal Flemish Philharmonic was conducted by Dirk Brossé himself. Galaxy Studios’ Tom van Achte elected to use this opportunity for A/B testing a completely analogue set-up from their equipment and a 100% digital microphone set-up supplied by Sennheiser Benelux for this purpose. As main microphones, he used three Neumann M 150s (analogue) and three Neumann D-01s (digital) in a Decca tree set-up. Neumann KM 133 Ds and KM 183 Ds were used to add surround and height information. The spot microphones included various models; on the digital side, these included KM 133 Ds for violins, viola and cello, and KM 184 Ds for the piano, timpani, woodwind overheads, and for the brass section (horns, trumpets, trombones, tuba). Sennheiser MKH 8040s were used as spot microphones for the flute, oboe, clarinet and bassoon. The percussion was picked up by KM 143 Ds, an MKH 8040, KM 185 Ds and KM 145 Ds. The choir was recorded in a separate room, miked by Neumann KM 133 Ds and KM 184 Ds, and was fed the orchestra’s audio signal via Sennheiser HD6 MIX monitoring headphones. With excellent reviews and around 220,000 seats sold so far, 14-18 is undoubtedly a landmark event amongst the many that are marking the 100th anniversary of the outbreak of the Great War. The musical will run until September but rumour has it that the run may be extended due to its massive success....



The orchestra for 14-18 was recorded in the Galaxy Studios. As main microphones, the engineers opted for a Decca tree set-up with Neumann D-01 and M 150 mics in an A/B comparison between digital and analogue



The choir was miked with Neumann KM 133 D and KM 184 D, and received the orchestra’s audio signal via Sennheiser HD6 MIX headphones

Sennheiser wireless used for the live event

- 4 x EM 9046 eight-channel receivers
- 32 x SK 9000 bodypack transmitters with 32 x MKE 1 clip-on mics
- 6 x SR 2050 monitoring transmitters
- 32 x EK 2000 IEM receivers
- 2 x directional antennas
- 6 x omni-directional antennas
- 1 x A 5000-CP circularly polarised antenna
- 1 x ADF 44 filter unit (custom-built)
- 2 x ADC-44 antenna distribution combiner (custom-built)
- 1 x ADC-33 IEM antenna distribution system for the wireless monitoring (custom-built)

Digital Neumann and Sennheiser microphones used for the pre-recorded material

- 4 x Neumann D-01 (multi-pattern)
- 6 x Neumann KM 133 D (omni-directional, diffuse-field equalised)
- 6 x Neumann TLM 103 D (cardioid)
- 16 x Neumann KM 143 D (wide cardioid)
- 2 x Neumann KM 145 D (cardioid with high-pass filter)
- 4 x Neumann KM 183 D (omni-directional, diffuse-field equalised)
- 23 x Neumann KM 184 D (cardioid)
- 2 x Neumann KM 185 D (hyper-cardioid)
- 8 x Sennheiser MKH 8040 (cardioid)
- plus 30 HD6 MIX headphones for the choir



MEDIAPRO

LIVE PORTRAIT

OB Vans Studios

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The MEDIAPRO Group is the European technical services supplier leading company to the audiovisual sector and guarantees a high quality service in all areas of television production and broadcast

With over 60 Production Centers and companies distributed by various countries in different continents, Mediapro provides technical and creative solutions to produce and broadcast any audiovisual product. It offers services and facilities in all areas of television production, including production and broadcasting of sports events, entertainment, information and institutional films; ENG services; on-air graphics; post-production; satellite signal and engineering and information systems. Also produces and distributes original TV contents, technical support to films productions and several solutions for interactive television, as well as sports rights marketing and management. Set up in 1994, the MEDIAPRO Group merged with the GLOBOMEDIA Group in 2006, and together with WPP formed the IMAGINA Group which today is the leading European multimedia content supplier and unique in its integration of audiovisual content, production and distribution. The company had a turnover in the region of 1,387 million euros in 2013 and a workforce close to 3,450.

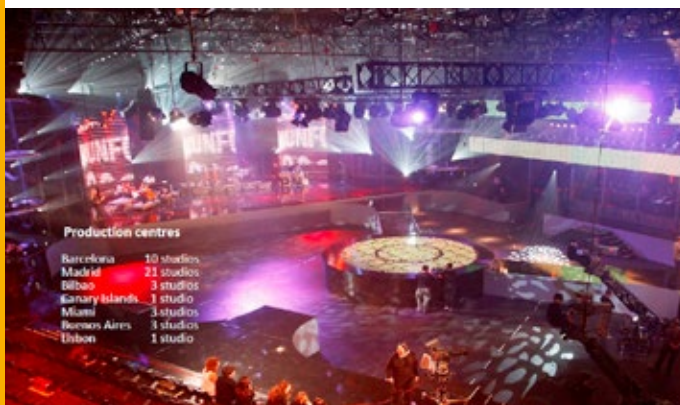


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 4K live production
 3D production
 Special Cameras : 4 sky, track cam, 2 sky, micro cam, vehicle cam, underwater/swimming cam, RF Cameras, High and Ultra speed cameras, UAV / Octocopter Cam; Jimmy Jib and Steady Cam
 Live U backpacks
 Audio services and Audio OB Van
 Graphics implementation
 Broadcast signal
 Audiovisual Engineering
 Design, construction and implementation of scenarios
 Skilled technicians in different areas of tv production

42 full equipped studios

Madrid - 21 studios	Buenos Aires - 3 studios
Barcelona - 10 studios	Lisbon - 1 studio
Bilbao - 3 studios	Canary Islands - 1 studio
Miami - 3 studios	



Content production, Screenwriting and creativity

TV original formats
 Special Actions

Marketing and communication

Sport Rights Management



Professional KVM Solutions for your HD OB Van

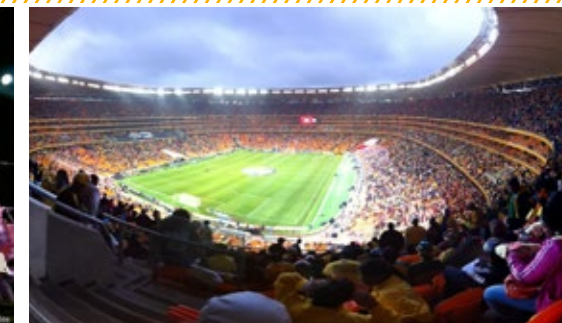


More information
www.inse.de

30 years **ihse.**
 Excellence in KVM and Video



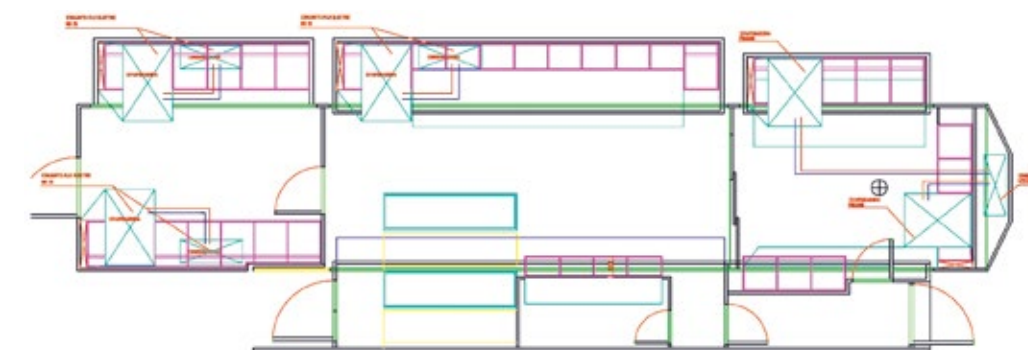
Camera Shding



TECHNICAL SYNOPSIS

Mediapro OB21

OB Van



Sound Area



Production Area



Equipment Racks

Video

16x Sony HDC-2570 cameras
 2x Sony HDC-3300 Super SloMo cameras
 Lenses from Canon / Fujinon / Angenieux as requested
 Vision Mixer: Sony MVS-7000 4M/E
 Monitors Production Area: 3 Full HD 46" SONY LCD monitors for Monitor Wall, 2 Full HD 32" for Audio Room and 6 Full HD 22" ASUS TFT monitors for SloMo positions.
 Monitors Vision Control: OLED High-grade Sony monitors
 Multiviewer/Splitter: Evertz
 Up to 6x VRT positions: Sony or Panasonic as requested
 Up to 4x EVS LSM XT3 6 or 8ch Servers
 Digital Glue from Snell
 Video Matrix: Evertz Xenon 128x128
 Video Measurement: Leader

Sound

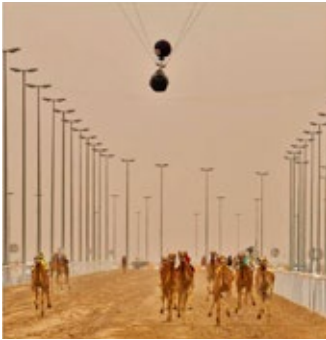
Audio Mixer: Euphonix System 5
 Audio Router: Snell Pyxis 32x32
 Microphones as requested

Intercom

Matrix: RTS ADAM 80x80

Coach Build

Length: 11,2m
 Width stowed: 2,5m
 Width expanded: 3,7m
 Height: 3,95m
 Weight: 16,5t



Equipment Racks



Vision Control



Production Area



SloMo Desks

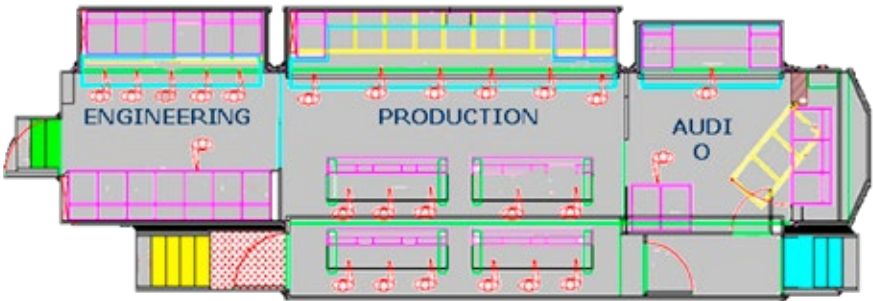


Vision Control

TECHNICAL
SYNOPSIS

Mediapro OB24

OB Van



Video

Up to 24x HDTV Triax multiformat Grass Valley LDK 4000/6000/8000 cameras including LDK 8300 Super Slomo.
Lenses from Canon / Fujinon / Angenieux as requested
Vision Mixer: Grass Valley Kayak 4M/E
Monitors Production Area: 23x HD 24" JVC LCD and 12x Cinema Display 23" Apple LCD, 2x 17" JVC LCD and 10x Triple 5" high resolution TFT-LCD screen Kroma.
Monitors Vision Control: 14" CRT Sony monitors
Multiviewer/Splitter: Miranda
Up to 12x VRT positions: Sony or Panasonic as requested
Up to 8x EVS LSM XT3 6 or 8ch Servers
Digital Glue from Snell
Video Matrix: Snell Sirius 128x128
Video Measurement: Tektronix

Sound

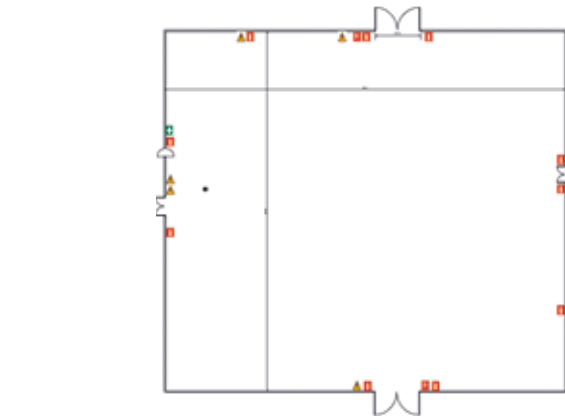
Audio Mixer: Euphonix System 5B and Yamaha DM1000 VCM
Audio Router: Snell Freeway 96x96
Microphones as requested
Audio Effects: Lexicon MPX1, TC Electronic M6000
Audio Recorder: Fostex CR500

Intercom

Matrix: RTS ADAM 96x94
Radio RX/TX: Riedel RiFace

Coach Build

Length: 13,5m
Width stowed: 2,4m
Width expanded: 4,8m
Height: 4,0m
Weight: 30t



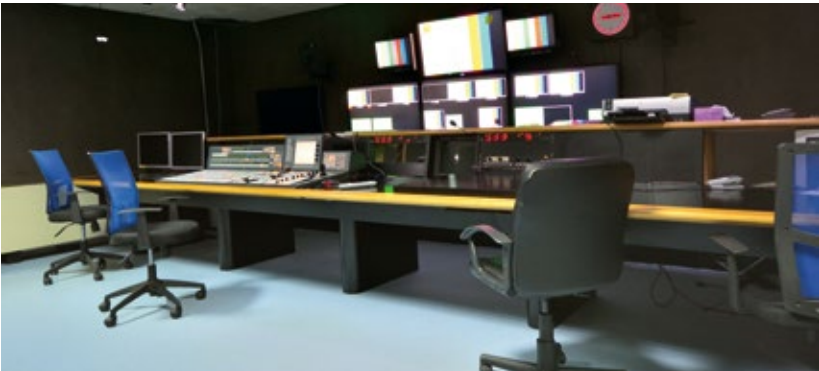
Monitor Wall



SloMo Control



Camera Shading



Production Gallery



Audio Gallery

TECHNICAL SYNOPSIS

Mediapro *Studio*

Studio Floor

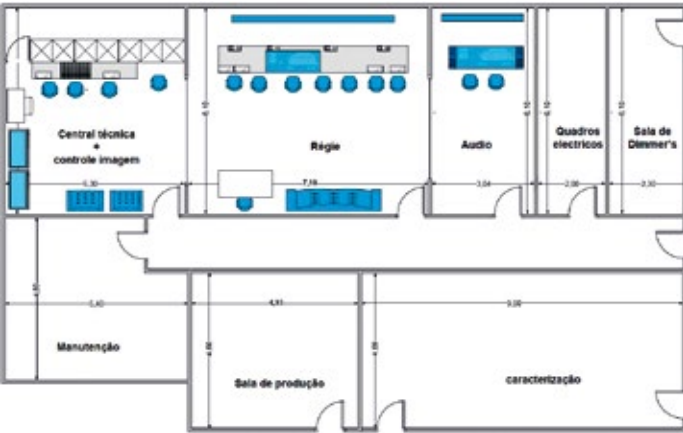
Size: 1,782m²
Length: 44,5m
Width: 40,0m
Height: 8,3m

Cameras & Lenses

6x Grass Valley LDK-8000 cameras
2x Grass Valley LDK-8200 cameras
Wireless Camera Adaptor: Link HD
A complete Range of Canon Lenses is available
Tripods and Pedestals from Sachtler

Video Gallery

Vision Mixer Snell Kahuna
Monitor Wall in Production: 7x Sony
Multiviewer from Evertz
Monitors for Camera Shading: 9x Kroma
VTRs: 3x Sony HDCAM
Disk Recorders: 2x EVS XT2 with IPDirector
Digital Glue from Evertz
Video Router: Grass Valley 128x128
Measurement Equipment from Tektronix



Audio Gallery

Audio Mixer Soundcraft Vi6
Audio Matrix: Snell Pixis 128x128
Audio Monitoring: Genelec
Microphones from AKG, DPA, Neumann, Sennheiser
Audio Multi-Track Recorder: Avid ProTools
Audio Effects: TC Electronic M6000
Audio Measurement: RTW

Intercom

Riedel Artist 64x64 Matrix
Wireless Talk-Back: HME200
RX/TX Radios: Motorola

Lighting in the Studio

Lighting Equipment: Vari-Lite, Strand, Robert Juliat
Total Dimmer Capacity: 400 Channels
Lighting Console: Wholehog, Compulite

PA in the Studio

PA Mixer: DB Technologies DVA T4
Audience Monitors: Martin Audio WT2 and JBL VRX



COBALT DIGITAL PROVIDE THE ENGINE ROOM FOR ANY BROADCAST PRODUCTION

Terminal gear and infrastructure are seldom discussed in terms of major importance for live TV production. We at Cobalt Digital strongly disagree! Whether for live entertainment, sports broadcasting or studio production, somewhere in the background lurks a multitude of signal processing, conversion, and distribution amplifiers (to highlight a few) that drives the engine and provides the production crew with the necessary signals they need to deliver a quality broadcast.



Len Chase, president CSP

At Cobalt, much of our development and subsequent product launches is derived directly from the challenges our customers encounter in their daily operations. CSP Mobile Productions, one of the fastest-growing mobile HD and digital television production companies in the US, has returned to Cobalt for terminal gear /infrastructure equipment each time they've expanded their series of outside broadcast units. In the words of Len Chase, President of CSP, "we are a Cobalt house and use their equipment solely for distribution and transmission". Chase added that Cobalt Digital have been chosen for "the technical features and functions, product quality and reliability, economic pricing, and significantly the company's service and support".

As CSP readies to launch the latest addition to their fleet, they've incorporated some of Cobalt's latest solutions, including the new 9970-QS Quint-Split video processor multi-viewer, to optimize production values. The new "B" truck will support CSP's HD4 unit for major sports network contracts.

Cobalt's 9970-QS Quint-Split is an ideal match for CSP because of its ability to monitor multi-screens with multiple video signals within the production area of the truck. The processor can handle multi-format images and features autosensing capabilities (3G/HD/SD-SDI and composite). The user-friendly system allows easy screen configuration with ARC and if required, full screen capability. The 9970-QS provides UMD, Tally and Timecode burn. Up to sixteen channels of audio metering



can be overlayed on any screen. Simultaneous SDI and HDMI outputs up to 1080p are available. Multiple cards can be cascaded to provide expended PiP muxing, and up to 20 cards can be installed into a single openGear® 2RU frame. CSP Mobile Productions have also used Cobalt equipment including comprehensive down conversion and distribution cards for the openGear® format in their existing OB units. Cobalt's down converters are working double for CSP. Not only are they being used as down converters, but as DAs for feeding analog and SDI multiples on the side of the truck. According to Len Chase, Cobalt's award-winning OGCP-9000 is being used for control. The OGCP-9000 offers instantaneous, real-time adjustments so operators can manipulate on-air signals with confidence and precision. "The fact that you can see all the cards, everything that's in the different frames, is a big advantage. We utilized them heavily in our first two shows; we were feeding specialty projectors and had to

change aspect ratios. It was very nice to have those features at our fingertips."

Chris Shaw, EVP sales & marketing of Cobalt Digital, stated "we in turn like to work with companies such as CSP for their input on product requirements. We listen to their needs and opinions to provide input and specification for future product development meet the needs of the OB industry."

In addition to the 9970-QS, Cobalt has recently introduced a number of products developed to address the needs of OB units as well as control rooms. The new Cobalt 9902-UDX Up-Down-Cross Converter/Framesync with auto-changeover and character burn provides a vital solution because live only happens once and there cannot be any room for error.

In any live event, especially sports, the engineering team can never be certain what signal format will be received, so the production crew MUST be prepared for every eventuality with a format converter capable of handling all possibilities. The 9902-UDX provides a high-density card based solution that offers unprecedented multi-input support, flexibility, and

Time to program your intercom? How does plug and play sound?

Advanced Digital Networking from ASL. Brilliantly simple.

With ASL Digital, setting up your show is as easy as one-two-three. First, set up groups in the user-friendly ConfiguriT™ software and give every user a unique ID number. Assign ID's by name, job title, or location. Then, simply plug into the network and log in. The matrix recognizes you, and instantly sets up your groups and other preferences. Beltpacks remember current IDs, so they log on at a touch – anywhere!

Now, put it to work. Take advantage of person-to-person (PTP) calling from every user station. Text messages to anyone on the network. Beltpacks with touch-sensitive iN-touch™ volume controls. Plus, the build quality you expect from ASL.

Utmost performance + utter simplicity = ASL Digital. The winning formula.
Details at www.asl-intercom.com





Since rapid and precise control of the colour correction process is a vital issue, the OGCP-9000/CC remote control panel was designed with a special emphasis on Cobalt's 9064 and 9084 cards and the 99xx series with +COLOR option. Lighting fast access is achieved via communication with the openGear frame for optimized high-speed Ethernet control protocol. The OGCP-9000/CC offers instantaneous, real-time adjustments, so operators can manipulate on-air signals with confidence and precision. Rotary controls allow direct access to gain, gamma and black for each of the RGB channels, in addition to YCbCr proc controls. An easy to use keypad enables intuitive access with minimal submenus. A given card uses only one level of submenus to access all of its functions.

The control panel is optimized for both bright and low light environments. A large format, super-bright, wide-angle color LCD screen shows sharp and clear text; operators can select either a white or black background. Other features include a fully backlit keypad and user-adjustable LED back light. Station engineers can configure the panel to restrict availability of specific cards and parameters for operation. Configuration is done through a simple web interface, where configurations can be exported, backed up, and re-imported easily.

The OGCP-9000/CC works seamlessly with DashBoard™ control software. Any changes made with either system are instantly reflected on the other. The OGCP-9000 family of panels also includes the award-winning OGCP-9000 remote control panel.



ease of use and integration. Up to 20 of these openGear cards can be installed in a 20-slot HPF-9000 or OG-3 frame. Multiple SDI inputs allow manual selection of input, or failover to alternate inputs (Auto-Changeover) on loss of input conditions which is vital live production. A Quality Check option allows fail-over to alternate inputs based on user-configurable subjective criteria such as black/frozen frame or audio silence. Operators and engineers can relax knowing they have a solution for every signal format that they may receive, and at the same time total confidence on signal security via ACO capability.

Another challenge facing broadcasters is the need for reliable, high-quality colour correction for both live and recorded events where monitors are part of the on-camera set. Cobalt answered customers' requests with the 9084 colour corrector card for openGear. The 9084 offers RGB-space colour correction with YCbCr proc features and frame sync for HD/SD-SDI video streams. The RGB processing controls provide full offset, gain and gamma adjustments. The YCbCr proc controls provide lift, gain, saturation, phase, white clip (hard and soft), black clip, and colour saturation clip – all with user memory. Parameter updates are smooth and responsive, providing real-time adjustments. Even though the card provides extensive control of the signal from the RGB perspective, it will continue to pass those signals that fall outside of the RGB gamut. Plug and YCbCr limit ramp signals pass without modification. When the CbCr saturation clip is activated, the saturation limiting operation will not affect the color phase. The colour correction option (+color) is also available for a number of Cobalt's 99xx series cards.

By talking and listening to customers, the Cobalt Digital engineering team have been able to provide the solutions to meet the challenges presented by today's broadcast industry.

By Chris Shaw, Cobalt Digital Inc. – president sales & marketing



www.cspmobile.com



www.cobaltdigital.com



NEP

LIVE PORTRAIT

OB Vans Studios

LED Trucks FlyPacks

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Andrew Armstrong
Sales Director

Tel: +61 2 9690 8080
aarmstrong@globaltv.com.au



"At NEP, we enable our clients to produce, execute, deliver and display exceptional productions on any platform around the world. For more than 30 years, we have been delivering solutions for remote production, studio production, video display and host broadcasting that set the global industry standard."

NEP is a leading provider of solutions for outside broadcast, studio production, video display and host broadcasting. For three decades, NEP has offered the highest quality facilities, equipment, technical management, production support and engineering available. They operate the industry's largest pool of broadcast and live event resources, which includes:

- A worldwide fleet of over 70 HD OBs and a full line of edit and support trucks
- An extensive array of flypacks and camera systems
- Studios in Los Angeles, New York and Australia, as well as custom control room design and integration capabilities anywhere in the world
- An arsenal of plasma, LED, projection and digital cinema displays
- The most Sony & Thompson HD cameras, Calrec and EVS equipment in the industry

NEP is recognized as leaders industry-wide, and their clients, who include the world's largest broadcasters and production companies, routinely look to NEP to support their most important productions. They have supported a range of events including:

Super Bowl
Academy Awards
The Masters
US Tennis Open
American Idol
World Series
NBA Finals
NHL Stanley Cup
The Royal Wedding
Champions League Final
Wimbledon
National Theatre Live - War Horse in 4K
Cold Play in Madrid Live on YouTube
Olympic Games Sochi
Commonwealth Games Glasgow
Olympic Games Beijing
Dubai World Cup
Commonwealth Games India
G20 Summit Brisbane
The Voice - Australia
Fox Footy AFL NRL
The Ashes Cricket, KFC Big Bash



Headquartered in Pittsburgh, Pennsylvania, with offices in Los Angeles, Chicago, New York, London, Cardiff, Sydney and Melbourne, they have supported productions in over 40 countries on all seven continents. From covering golf in paradise to supporting broadcasts in a war zone, they understand the challenges of working around the globe. Every one of their productions is backed by an extensive support network and their pool of global resources.

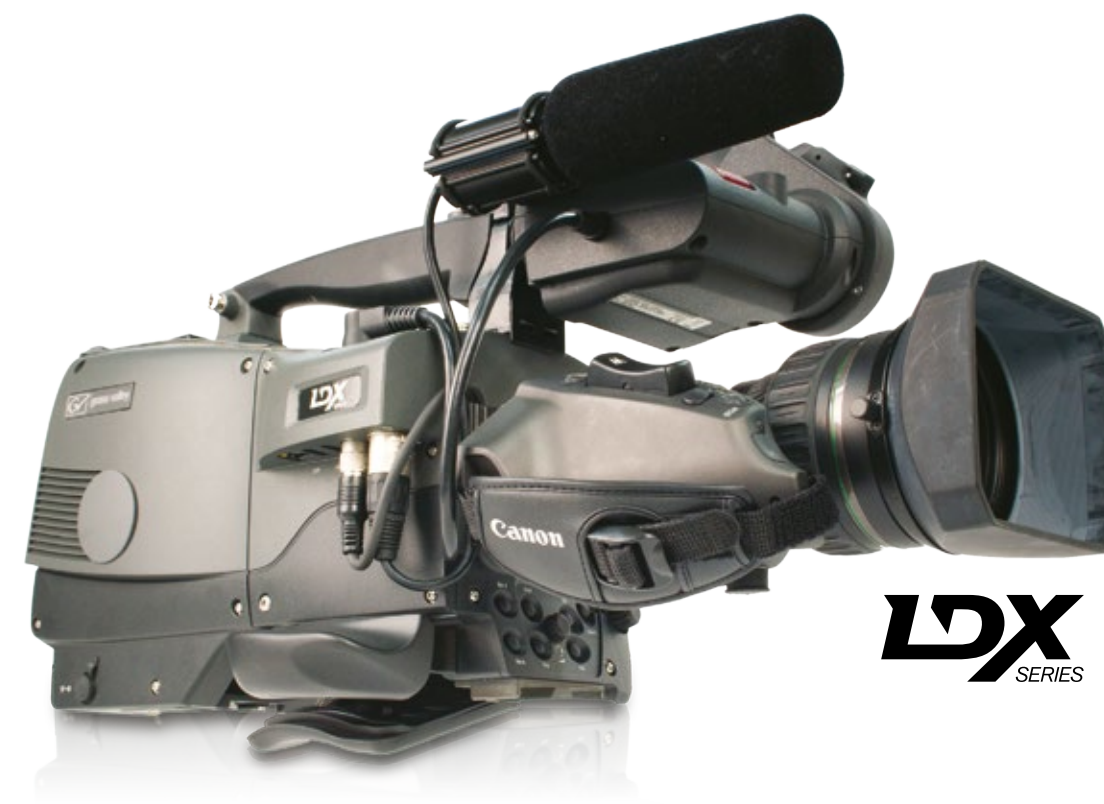
With over 900 employees worldwide, their facilities and equipment are backed by the finest technical, engineering and operations team in the industry - with experience supporting every type of production, large and small. Collectively, their team has racked up awards and honors that include: five inductees into the Sports Broadcasting Hall of Fame, two leaders honored with Broadcasting & Cable Technology Leadership Awards, 4 Pollstar Awards, 4 Parnelli Awards, Tour Link Magazine's Top Dog Award for Video Company of the Year, A 2014 NewBay Media NAB Best in Show Award presented by TV Technology and Countless Emmys and Sports Emmys. Plus, their CTO is a SMPTE Fellow and and NAB Board Member.

NEP is dedicated to innovation and technology development. They own more Sony cameras, Grass Valley switchers, Calrec Audio consoles and EVS servers than anyone else in the industry. Their privileged relationships with manufacturers allows them to receive top-notch support, and their collaborative efforts have played a significant role in the development of some of the latest broadcast technologies. In addition, NEP operated NEP Labs, an internal team dedicated to developing new and innovative technologies. Their technology experts and engineers around the world, as well as their team at NEP Labs, have driven many industry firsts.



LDX XtremeSpeed

The ability to amaze.



LDX
SERIES

Your audience demands excitement. LDX XtremeSpeed delivers. With up to **6X speed** for immediate and spectacular replays.

www.grassvalley.com/products/ldx_high_speed

Visit Grass Valley at IBC 2014
Booth 1.D11





As part of the NEP Worldwide Network, the company operates several other globally recognized brands

- Visions:** The leading provider of solutions for Outside Broadcast in the UK.
- Roll to Record:** A premiere provider of solutions for studio and fixed-rig productions.
- NEP Cymru:** An outside broadcast and studio solutions provider focused on serving the Welsh market.
- Bow Tie Television:** A managed media services provider for parliaments and government authorities.
- Global Television:** The premiere provider of outside broadcast, studios and host broadcasting solutions in Australia.
- Screenworks:** A leading provider of video display solutions for the concert touring and live event industries.
- Sweetwater:** A leading provider of video display solutions for television production, corporate engagements and live events.

NEP also has a partnership with Brazil’s leading DSNG provider, Casablanca Online, to provide two cutting-edge HD OBs in South America.

A snapshot of NEP’s Solutions

Outside Broadcast

Across their brands, NEP operates a fleet of over 70 HD OBs across North America, the United Kingdom and Australia. They also offer a complete line of flypacks in a range of sizes. Their technical and engineering experts help to plan and support the broadcast of major live sporting and entertainment events around the world. They can create a custom solution for any event no matter where in the world it happens.

Studio Production

NEP operates permanent and semi-permanent studio facilities in Los Angeles, New York, Connecticut, London, Melbourne and Sydney – and their team of studio production experts can create new custom control room solutions anywhere they are needed. From fixed-rig reality programs to talk shows to sitcoms to news programs, NEP has supported every type of studio production.

Video Display

NEP has helped to create display solutions for television sets, major concert tours, live sporting events, corporate events, tradeshow, and a variety of live events. They offer a full range of LED display technologies, plasma screens and digital cinema projection solutions that their experts can use to bring any design to life.

Host Broadcast

Partnering with production companies, broadcasters and host committees, NEP can provide an end-to-end solution that will meet the needs of any event large or small. From creating and building out an IBC to providing broadcast facilities at multiple venues to managing multiple feeds along with supporting a variety of broadcasters needs and requests, NEP’s team of expert professionals can handle it all.

EXPERTISE

- Over 400 engineers and technical experts on staff
- In-house apprentice program for developing engineering talent
- Over 5,600 shows supported around the globe each year
- In-house integration facility in the U.S. where we design and build mobile units

FACILITIES

- Over 70 HD mobile production trucks PLUS flypacks
- Permanent studio facilities in Manhattan, Sydney and Melbourne and the ability to create custom control rooms anywhere in the world
- Large pool of display technologies including LED, plasma and projection equipment
- The most Sony & Thompson HD Cameras, Calrec and EVS equipment in the industry

SUPPORT

- Over 150,000 sq. feet of field shop in the US, UK and Australia
- Staff of over 300 for logistics and equipment coordination, maintenance and support
- Privileged relationships with manufacturers providing top-notch support
- In-house fiber shop for fabrication and maintenance

WORLDWIDE COVERAGE

THE AMERICAS

- Super Bowl
- Academy Awards
- The Masters
- US Tennis Open
- American Idol
- World Series, NBA Finals, NHL Stanley Cup
- X Games – Brazil
- Carnival 2014 - Brazil

UK / EUROPE

- The Royal Wedding
- Champions League Final
- Wimbledon
- National Theatre Live - War Horse in 4K
- Coldplay in Madrid Live on YouTube
- Olympic Games Sochi
- Commonwealth Games Glasgow

MID EAST / ASIA / AUSTRALIA

- Olympic Games Beijing
- Dubai World Cup
- Commonwealth Games India
- G20 Summit Brisbane
- The Voice - Australia
- Fox Footy AFL NRL
- The Ashes Cricket, KFC Big Bash

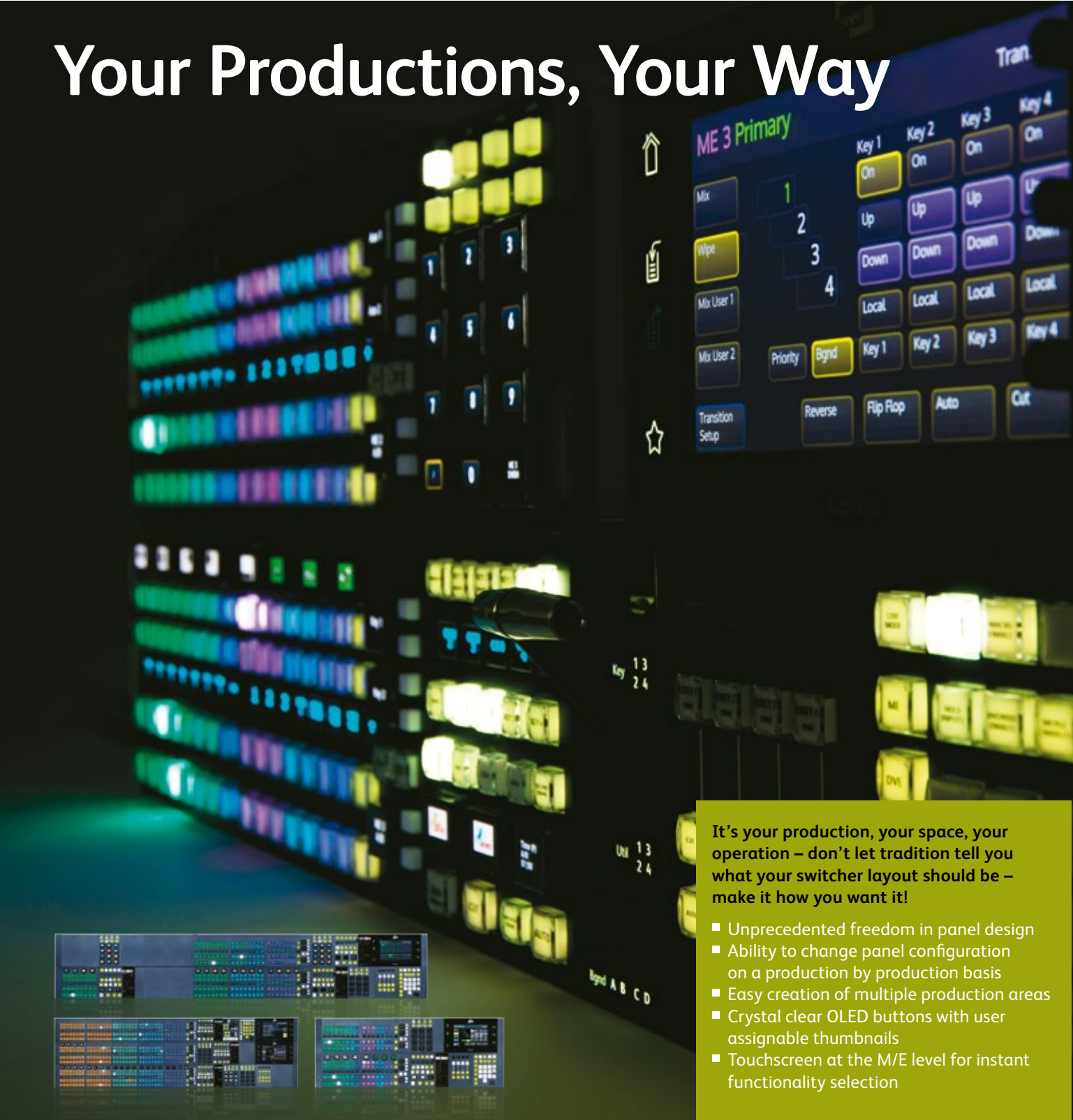
In total NEP has supported productions in over 40 countries on all seven continents around the world.

The Revolution Continues
snellgroup.com/maverik

Kahuna MAVERIK

snell
A Quantel Company

Your Productions, Your Way



It’s your production, your space, your operation – don’t let tradition tell you what your switcher layout should be – make it how you want it!

- Unprecedented freedom in panel design
- Ability to change panel configuration on a production by production basis
- Easy creation of multiple production areas
- Crystal clear OLED buttons with user assignable thumbnails
- Touchscreen at the M/E level for instant functionality selection





1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	MON 55		MON 56		31	32	33	34	
UPLINK 1 (L)	35	36	37	MON 57		MON 58		39	40	UPLINK 2 (R)		
MON 41	MON 42	MON 43	MON 44	MON 45	MON 46	MON 47						
MON 48	MON 49	MON 50	MON 51	MON 52	MON 53	MON 54						

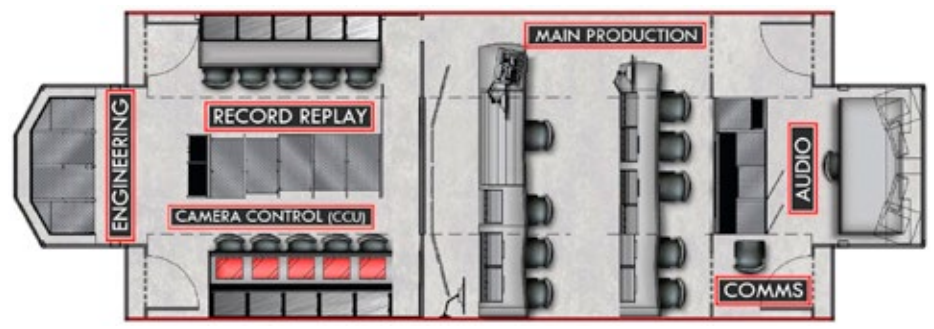
Camera Shading



Production Switcher



SloMo Server



TECHNICAL SYNOPSIS

Global Television HD9

OB Van

Video

- 16x Sony Cameras HDC-1500
- Sony HDC-3300 on request
- Wireless Camera Adaptor on request
- Connectors on Cameras, CCUs and Cables: Lemo Fiber
- Lenses from Canon, all Focal Lengths available
- Vision Mixer: Sony MVS-8000G
- DVE: Sony MVE-9000 2 Channels
- Character Generator on request
- Monitors Production Area: 2x Sony 24", 14x Sony 17", 40x Sony 9"
- Monitors Camera Shading: 5x Sony 17"
- Multiviewers: Evertz VIP
- Up to 4x VTR slots are available
- Up to 6x EVS XT3 slots are available
- Digital Glue from Evertz
- Video Controller: L-S-B VSM
- Video Matrix: Evertz EQX 240 x 224
- Video Measurement: Tektronix WFM

Audio

- Audio Mixer: Lawo mc56, 56 Faders
- Audio Router: Lawo Nova 73
- Audio Monitoring: Genelec 5.1
- Audio Effects: TC Electronic DB4, M6000, M3000
- Microphones from Sennheiser

Intercom

- Matrix: Riedel Artist 128 x 128
- Wireless Talk-Back: Motorola

Coach Built

- Length: 13,2m
- Height: 4,3m
- Width (stowed): 2,5m
- Width (expanded): 3,6m
- Weight: 36,0t
- System Integrator: Global Television

Production Area



Sound Area



Our Fleet of LED Trucks, affectionately named “Big Mo” trucks (for Big Mobile) come in a variety of sizes. These trucks supply their own power and can be the perfect solution for large or small venues. As one of the innovators in mobile LED systems, we have never stopped building the most versatile fleet in our industry. As a staple for NASCAR over the last five years, event coordinators are catching on to the ease and look of a “TV on a stick”. With the ability to generate our own power and turn our screen in the desired position, it is the perfect solution for large open areas.



BigMo 1 & 2

The “little brothers” of our Big Mo fleet can fit perfectly in smaller venues, or even a tent. With the ability to fit in tighter spots and raise the 9’ x 12’ screen, these trucks have been the solution for corporate events and sporting events alike. We have the option of generating our own power and can add audio.

BigMo 4

The latest addition to our fleet, BigMo 4 is the largest LED screen trailer in the world, with a display measuring 19’ high by 33’ wide with an additional 4’ ad banner around the entire perimeter.

BigMo 5, 6 & 7

The must have at racing events like NASCAR, NHRA and IRL, these are the mobile screens asked for time and again when your venue is a large open area. These mobile screens are 20’ x 27’ and use Daktronics 13mm LED for incredible detail and brightness that can hold up in any outdoor situation.

BigMo 8 & 9

With our new 17’ x 22’ Daktronics screens, heads are turning to see all the action. Self sufficient in power and audio, we are virtually a rolling television studio. With a 180 degree screen turning radius and on-board power, you’ll be amazed at the quick set time.

VISIT US AT IBC
HALL 8 / STAND D.50



CONTENTS

[WHOAAA!]

HD [WHOAAA!]s – Made by Sennheiser.

Sennheiser’s Esfera microphone system provides 5.1 surround sound from just two channels, making complicated surround mic installations a thing of the past.

The compact high-quality stereo microphone and 19” processing unit are all you need to produce a complete 5.1 signal – anywhere in the production workflow, whether in real time or during post production.

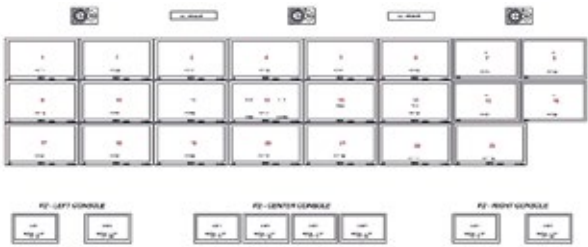
www.sennheiser.com



SENNHEISER
The Pursuit of Perfect Sound



Camera Shading



Production Area



SloMo Area



Sound Area



TECHNICAL SYNOPSIS

NEP EN1

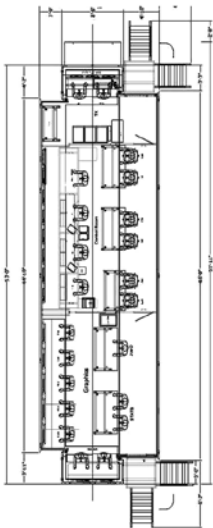
OB Van

Video

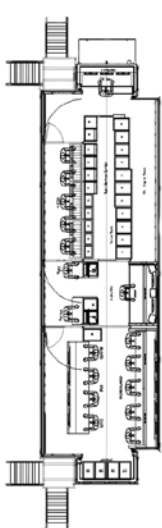
- 16x Sony HDC-2500 Cameras
- UltraMotion Systems can be integrated
- Lenses from Canon, all Focal Lengths available
- Tripods from Vinten
- Vision Mixer Production 1: 1x Grass Valley Kayenne 3G, 4K capable
- Monitors in Production 1: 23x 32" boland
- Vision Mixer Production 2: 1x Grass Valley Kayenne Satellite
- Monitors in Production 2: 8x 23" boland
- Multiviewer/Splitter: Evertz Maestro
- Character Generator: Vizrt Artist, Orad Playmaker and Orad HDVG
- Monitors Camera Shading Area: 22x 22" Ikegami
- Multiviewers: Evertz Maestro
- 1x Panasonic AJ-HD1700
- Up to 12x EVS XT3 8ch, IPDirector
- Digital Glue from Cobalt, AJA and Harris
- Video Matrix: Evertz EQX 3G
- Video Measurement: Wohler RM Series

Audio

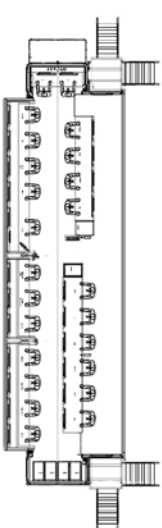
- Audio Mixer: Calrec Apollo Bluefin
- Audio Matrix: Evertz
- Audio Monitoring: Blue Sky Sat 6.5
- Audio Effects: Day Sequerra
- Audio Multi-Track Recording: Digicart E
- Microphones from Sennheiser



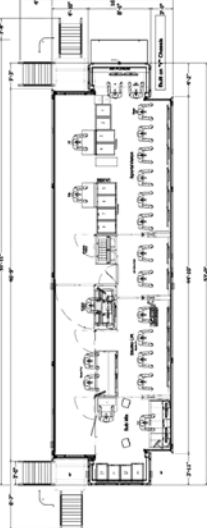
NEP EN1A Unit



NEP EN1B Unit



NEP EN1C Unit



NEP EN1D Unit

Intercom

- Matrix: RTS Telex 128 x 128
- Wireless Talk-Back: RTS Telex
- Radio TX/RX: Motorola

Special Features

The concept of the truck was to ensure as close to a studio production environment as we could achieve with light and airy spaces good eye lines all combined with speed of set up. With a large flexible VT operation and spacious Production area.

Coach Built

- Length: 16,15m
- Height: 4,14m
- Width (stowed): 2,62m
- Width (expanded): 4,78m
- System Integrator: NEP Visions Sony Professional Solutions Basingstoke
- Coach Builder: Cosby



Orad Graphic Systems



Day Sequerra Audio Recorders



EVS XT3



NEP announced the launch of The Wall™, a new app for the Apple® iPad® that enables fast and easy configuration of complex monitor walls in customers' mobile production units. Developed by NEP Labs, this revolutionary new app greatly reduces the time it takes to configure monitor walls and provides a unique and valuable tool to production teams.

In sports and entertainment mobile units, there can be more than 150 individual monitors displaying as many as 32 video sources each, with a number of options for style, configuration, and layout. Every production team has its own individual preferences, meaning that the monitors need to be reconfigured for each and every show, often with just hours from the time the mobile unit parks until they go live on air.

Until now, configuration of the multiviewer hardware that feeds these monitors has been a time-consuming and tedious task that required a mobile unit engineer, even for minor changes. With The Wall, NEP has created a solution tailored to the fast-paced and sometimes unpredictable world of mobile production, where rapid setups are required, and changes can arise at any moment. This app empowers engineers, technicians, and members of a production team to set up their own monitor walls easily and quickly and make changes on the fly whenever they want – without having to wait for the mobile unit engineer to go through a long configuration process.

“Compared to our previous manual processes, The Wall was like going from a rotary dial phone to an iPhone 5 overnight,” said beta user Kris Castro, technical director for a major sports broadcaster. “A configuration that used to take at least three hours now takes maybe 15 minutes. In addition to being a tremendous time-saver, The Wall has given me much more flexibility. Without having to involve an engineer, I can log in to the system and make necessary changes, or configure the monitor wall offline and then save the configurations under my name. If I want to use a configuration from last week, it’s there and ready to load. And if I want to create a layout for a director I’m working with in three weeks, I can do it in advance and then just walk right onto the truck and patch the monitors in a matter of minutes. NEP has created an incredibly smart way of approaching this task.”

With The Wall, any user can configure monitor walls with drag-and-drop selection from a variety of monitor layouts and any of the available video sources. The Wall offers several easy and quick tools that allow users to customize almost every detail — such as border styles, colors, and tally views. A swap tool enables the user to rapidly swap video sources as well as whole screen layouts, with instant reconfiguration of the screen if the number of sources has increased or decreased in the swap. When finished, users can save screen configurations to a “favorites” list and recall them at the touch of a button in any NEP Mobile Unit enabled with The Wall — a valuable timesaver for touring productions that need to maintain the same video wall configurations from show to show. Through connection with a server that controls the multiviewers on the trucks, configurations built into The Wall are automatically populated to the monitor walls in real time. Users can also work with the tool offline before they arrive on site, and then log on when they arrive at the mobile unit to instantly set up the monitor walls with the new configurations. The Wall is completely multiviewer-agnostic and provides seamless connectivity with all major manufacturers’ systems.

“The Wall replaces a process that often takes hours and doesn’t typically begin until the crew walks onto the truck. Now, the technical director or engineer can arrive at the venue with all of that time-consuming work done, and focus instead on the creative aspects of the show,” said Jeff Joslin, vice president, NEP Labs. “At NEP Labs, our focus is on creating innovative new technologies that make life easier for mobile broadcasting professionals and help them be as efficient as possible. The Wall is just the latest example.” The Wall is currently in NEP’s mobile units SS22, ND5, ND6, and SS18, and will be installed on 10 more mobile units throughout the remainder of the year. The Wall was on view at this year’s NAB show and won a NewBay Media Best of Show Award from TV Technology.

STUDIO*tech*
AUDIOVISUAL ENGINEERING



**AUDIOVISUAL
ENGINEERING
AT ITS BEST**

CONTENTS

OB vans, DSNG and energy vehicles for TV & Radio

Studiotech is a major player in the field of integration and engineering of mobile audiovisual systems for television and radio. In this sector, we benefit from long experience in the study, design and implementation of TV OB vans, radio OB vans, DSNG or even soundproof energy vehicles.

We combine know-how and experience with an advanced and innovative design which enables us to offer multiple solutions that are always conscious of the optimum quality: price ratio.



Our vehicles (OB vans, DSNG vehicles, etc.) are designed to include leading edge technological equipment that is high-tech, flexible, user-friendly and robust. New ergonomic concepts are incorporated including; mosaic walls, multi-views on large screens, video servers coupled with shared storage, slow motion systems and live animation graphics, etc.

We always provide a very high quality finish combined with great attention to detail.

In choosing Studiotech as a partner to be responsible for your vehicles, you are guaranteeing the completion of your project in its entirety without any concessions in standards, always with well-thought-out solutions and a constant eye on the technology of the future.

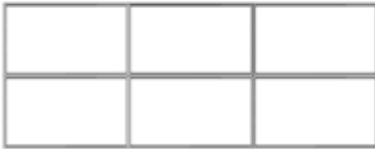


STUDIO*tech*
AUDIOVISUAL ENGINEERING

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STUDIOCTECH OFFICES

BRUSSELS	RABAT
ALGERIES	SYDNEY
BUDAPEST	WARSAW
PARIS	



Multiviewer Monitor Stack 6x 46" with 32 input MV feeding each pair



EXAMPLE STACKS

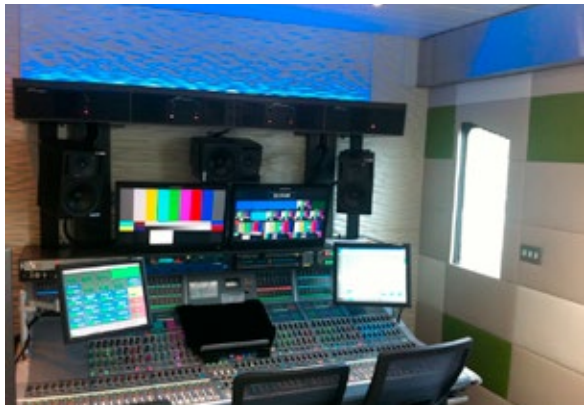
SloMo Area



Production Area



EVS XT3



Audio Area

TECHNICAL
SYNOPSIS

**NEP Visions
Atlantik**

OB Van



Video

- 30x Grass Valley Cameras LDK-8000 Elite 3G 1080p
- 3x Grass Valley Super SloMo Cameras LDK-8300
- UltraMotion Systems can be integrated
- Up to 8x RF cameras can be integrated
- Lenses from Canon, all Focal Lengths available
- Tripods from Vinten
- Vision Mixer: 1x Grass Valley Kayenne 3G, 4K capable
- Character Generator: up to six dual channel graphics devices
- Monitors Production Area: 6x Samsung 46"
- Monitors Camera Shading Area: Sony BVM-F170
- Multiviewers: Evertz VipX
- Up to 6x Sony HDCAM/HDCAM SR VTRs
- Up to 9x EVS XT3 8ch, IPDirectors and XF2 stations
- Digital Glue from Evertz
- Video Matrix: Evertz EQX 3G 860 x 1250
- Video Measurement: Tektronix WFM

Audio

- Audio Mixer: Calrec Apollo
- Audio Matrix: Evertz
- Audio Monitoring: Genelec 5.1
- Audio Effects: TC Electronic
- Audio Multi-Track Recording: wired for 2x 48 channel Recorders
- Microphones according to customer requests

Intercom

- Matrix: RTS Telex 128 x 128
- Wireless Talk-Back: RTS Telex
- ISDN Codecs: Glensound

Special Features

The concept of the truck was to ensure as close to a studio production environment as we could achieve with light and airy spaces good eye lines all combined with speed of set up. With a large flexible VT operation and spacious Production area.

Coach Built

- Length: 16,5m
- Height: 4,3m
- Width (stowed): 2,55m
- Width (expanded): 6,4m
- System Integrator: NEP Visions Sony Professional Solutions Basingstoke
- Coach Builder: Cosby



TECHNICAL
SYNOPSIS

Manhattan
Sydney
Melbourne

Studios

NEP Studio Production

NEP rents studio facilities in New York, Sydney and Melbourne; manages semi-permanent studio control rooms in Los Angeles, Connecticut and London; offers a transportable control room; and has the ability to create custom control room solutions anywhere in the US, UK and Australia.

Melbourne Studios:

Media City Melbourne

Global Television Studios at Coventry Street, Southbank, on the doorstep of Melbourne's beautiful Royal Botanic Gardens, offer some of Australia's most flexible television studio options. There are three studios: A, B and C. Some of the features of each television studio include the following

Melbourne Studio A:

- 36m x 22m (792m²) multi-purpose sound stage
- 97 motorised lighting battens
- Fully functioning SDI control room
- Nine dressing rooms and hair and makeup facilities
- Green room

Melbourne Studio B:

- 33m x 20m (660m²) multi-purpose sound stage
- 96 motorised lighting battens
- Support and infrastructure for SD or HD digital production vans and state-of-the-art HD control room
- Six dressing rooms with en-suite
- Hair and makeup facilities

Melbourne Studio C:

- 9.6m x 6.6m (63.36m²) product studio
- 3.5 metre high lighting grid
- Control room facilitation capability
- Chroma key facilitation
- Photographic Studio capability
- Fixed lighting grid equipped with dimmer outlets

Manhattan Studios:

- NEP 5th Avenue A
- NEP 5th Avenue B
- NEP Studio 52
- NEP Studio 54
- NEP Studio 33
- NEP Studio 37
- NEP Midtown Studio
- NEP Metropolis Studio
- NEP Penn Studio

All of our Manhattan studios come with fully-equipped control rooms, office space and support facilities including makeup, break rooms/kitchens and more.

Sydney Studios:

Media City Sydney
Sydney television studios at Media City proudly offer Sydney's most advanced end-to-end television studio facilities.

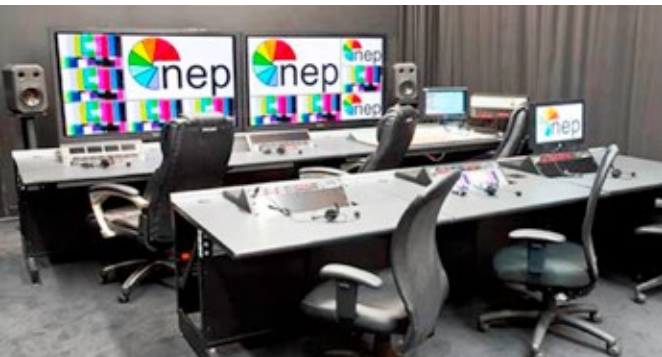
Each studio features:

- Nine dressing rooms (including two star dressing rooms with make-up mirrors)
- Wardrobe room with high, long bench and washer/dryer
- Make-up/hair (four make-up chairs and one hair chair) daylight and tungsten lighting
- Male and female showers/quick change rooms
- Two multi-purpose/green rooms
- Fully furnished, flexible-layout production office (comprising two self-contained offices, 12 workstations, meeting room, breakout room, kitchen facilities and metered phone system. IT service can be provided on user-pays basis)
- Secure access all areas under programmable swipe card readers
- Colour-coded set storage and props cage
- Five underground secure car parking spaces for client allocation
- Public car parking
- Metered usage of air conditioning and power so client pays only for what they use
- Full redundant power supply available
- Studio 1 – support area of 587m², set store/props of 299m²
- Studio 2 – support area of 600m², set store/props of 248m²

Internal features include:

- Studio size: 763m², 31.3m x 24.4m
- Seven metres to the lighting truss
- Super flat floors with a NR25 external noise rating
- Place of Public Entertainment (POPE) licensed for 450 person studio occupancy (cast, crew, audience)
- 800 watts per square metre cooling capacity, ideal for large audiences





Our unique transportable studio can be shipped to any location in North America, where it can be fully operational, often in less than 12 hours. It provides a full complement of state-of-the-art control-room equipment to accommodate productions of various sizes. This new studio solution was designed for smaller productions that have shorter run times that might not have the budget or the need to rent a permanent studio space — such as series pilots, shows that are in a limited-audience testing period, talk shows, magazine shows, multicamera corporate or enterprise video projects, or productions that rely mainly on webcasting. Although this transportable solution can be customized to include any equipment combination specified by the client, the standard configuration supports productions of six to eight cameras and includes a choice of a Grass Valley Kayak, Kalypso, Karrera, or Kayenne switcher; a 48-input Studer Vista 5 audio-mixing desk; a six-channel DVD-RAM recorder; and eight DVE systems. Also included are a complete Riedel intercom system, an integrated router, and a monitor wall that can be scaled and configured to the size and dimensions of the production space. NEP's transportable control room includes chairs and consoles that can be assembled in up to three rows to accommodate up to 10 technicians and production staff.

Flexible system to meet your production needs

- HD or SD, 1080i, 720p, 1080p 23.98sf, 525 NTSC & all international formats
- Modular production console design allowing the system to meet a wide variety of needs
- Complete Integrated Power Distribution System
- Power requirements - 3 Phase 60 amp/leg 208 Volt Service
- Engineering racks fit into a 12x20 space

TECHNICAL SYNOPSIS

Transportable Control Room

FlyPacks

Video

- Kayak 2.5M/E 48x24 8 Ch DVE & 6 Ch RAM Rec - Larger switchers available upon request
- Harris 128x192 HD router w/ embedding/de-embedding & 12 Multi-viewer outputs
- External processing, fiber connectivity and other accessories available as required
- Wired for up to 10 cameras & 24 channels of recording & playback
- Support for both tape (all formats) and tapeless workflow
- Graphics systems available as required: Pinnacle Deko, Ross Expression, Chyron Hyper X3, Chyron Mosaic and many others
- Full compliment of monitors, scopes, audio/video distribution & many other tools

Audio

- Studer Vista 5 Digital M3 audio console
- 96 mic/line preamps, AES & analog I/O, plus 3 MADi ports for expansion

Intercom

- Riedel Artist digital intercom system
- 112x112 and all necessary accessories

SABC TV

- LIVE PORTRAIT
- OB Vans
- Uplink FlyPacks

General Contact

SABC TV Outside Broadcasts
11 Canary Street
2006 Auckland Park
South Africa

Tel: +27 11 714-4300/2961

www.sabc.co.za/tvob

Contact Person

Cosmas Tshabalala
General Manager
tshabalalacm@sabc.co.za
AirtimeTVOB@sabc.co.za



SABC TV OB boasts a fleet of 10 Outside Broadcast Units and many OB ancillary resources

39 years of experience in the production of major productions all over the world enables SABC TVOB's to tackle any size project with success. Areas of specialisation are sports (soccer, cricket, rugby, golf, boxing, etc), news (elections, funerals, etc), large music concerts and variety shows (Miss World and Miss SA). SABC TVOB's head office is situated in Johannesburg and the unit also has satellite offices in Durban, Port Elizabeth and Cape Town. This infrastructure gives the unit the ability to provide support to events country wide.



Internationally, SABC TVOB's has successfully covered some major events: Sydney 2000 Olympics (seven outside broadcast units were shipped to Australia), cricket coverage in Sri Lanka, and Miss World in India and Seychelles, to name a few.

In South Africa we were involved in most of the major events over the years:

Many of the golfing majors (Million Dollar, Presidents Cup, Women's World Cup, Sunshine Circuit, etc)
 Rugby World Cup : 1995 (Host Broadcaster)
 Cricket World Cup : 2003
 Confederations Cup : 2009; and
 SABC coverage of Soccer World Cup : 2010
 AFCON 2013 (Host Broadcaster)
 Nelson Mandela funeral (Host Broadcaster)
 CHAN 14 (Host Broadcaster)



SABC TVOB boasts a fleet of 10 Outside Broadcast Units and many OB ancillary resources. Six of the units have dual pull out sides and are designed to be highly adaptable to meet the ever changing requirements of modern outside broadcasting. The layout ensures comfort and maximum production efficiencies. Fully integrated and robust technology platforms ensure maximum reliability and at the same time offer the utmost in user friendly control. The EVS's on the unit are equipped with Clean Edit, IP Direct and XStore. The design was based on our own requirements and FIFA's specifications for SWC 2010.

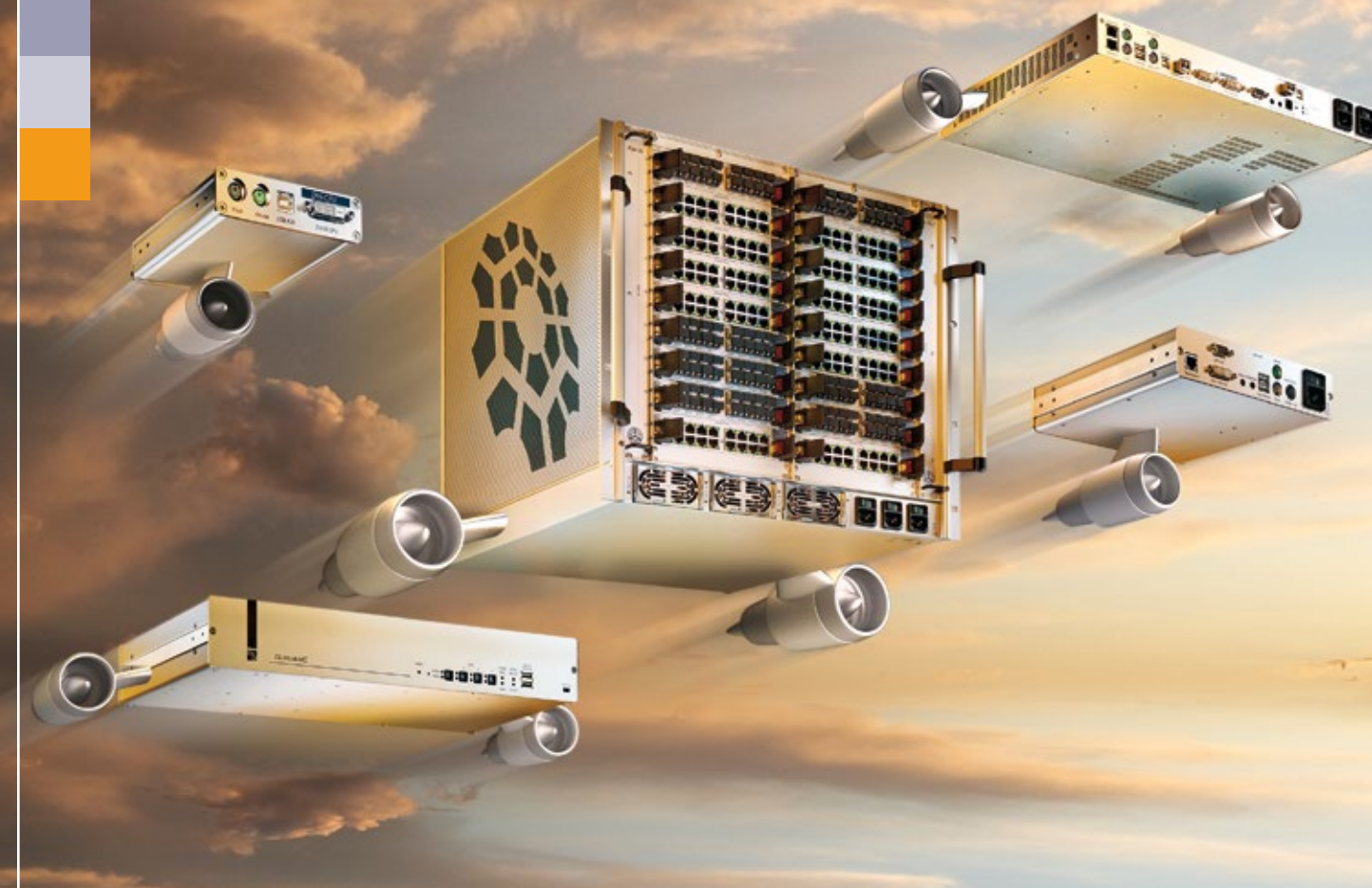
A comprehensive assortment of add-on facilities such as satellite uplinks (DSNG), microwave links, fly-away units, tracking motorbikes, jibs, mini cameras, TV lighting, and helicopter links are available in our stock.

Our staff has experience of working with top directors from all over the world and is highly sought after. We also make use of a large number of freelancers to ensure that the client is able to work with operators of their choice.

SABC TVOB's professional reputation has spread across the world. Among others, we've done work for the BBC, NBC, ABC, CBS/ESPN, Fox, Sky TV and TWI, and have broadcast from Malaysia, Madagascar, Spain India, England and Atlanta and even live from the super cruise liner, the QE II. Our significant contribution to the Olympic Games in Sydney was marked by us providing no fewer than 8 Outside Broadcast vehicles and a technical crew of 30.

It is safe to say that SABC TVOB's is the largest facility provider in Africa, with experience that is unmatched.

IT'S WHAT'S BEHIND THAT KEEPS US AHEAD



**LEADING
THE WAY IN
DIGITAL KVM**
www.gdsys.de

G&D's KVM systems have a proven reputation for long lasting usability and reliability. But that's not all that keeps us ahead.

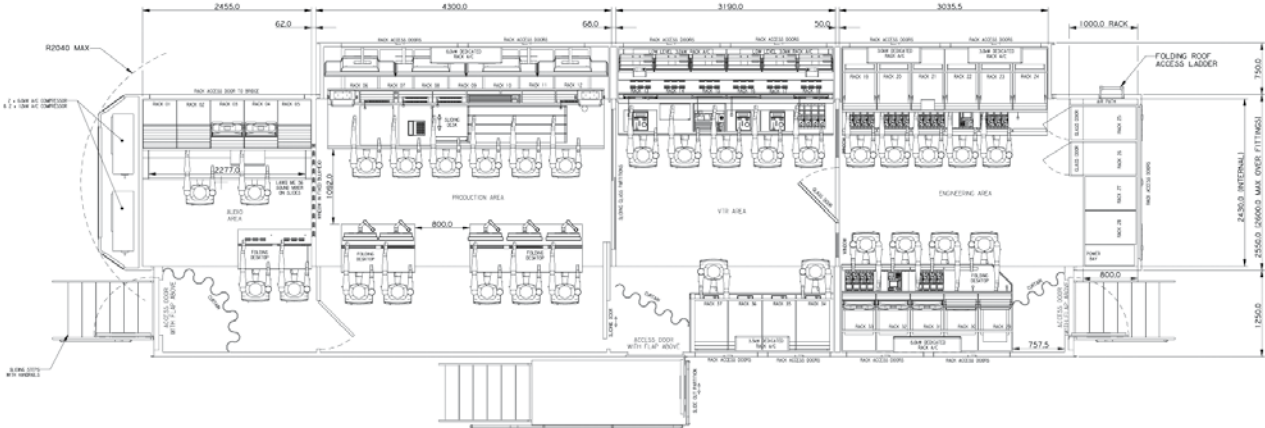
Because G&D don't just provide systems, we deliver solutions. KVM solutions that are tailor-made to meet your specific needs.

Our broad portfolio allows us to combine products and systems to cover any application. Our expertise in all areas ensures your G&D solution is right for you

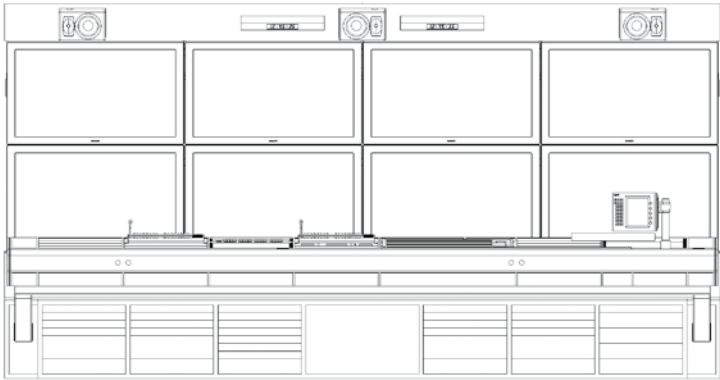
in every way – from design to planning, from installation to technical support.

Versatility also plays its part in keeping us in front. For instance, we offer systems for a wide range of different video standards – digital or analog – with bandwidths up to 4K (incl. Full HD, 2K and Ultra HD).

The power to deliver the perfect KVM solution. That's G&D.



Monitor Wall



Camera Shading Area



SloMo Area



Production Area



Sound Area

TECHNICAL SYNOPSIS

SABC 1J HD

OB Van

Video

- 15x Sony Cameras HDC-1550
- 3x Sony SuperSloMo Camera HDC-3300
- Wireless Camera Adaptor on Customer Request
- Connectors on Cameras, CCUs and Cables: Lemo Fibre
- Lenses from Canon, all Focal Lengths available
- Tripods and Pedestals: Vinten
- Vision Mixer Sony MVS-8000G 4M/E / 8ch DVE
- Character Generator on Customer Request
- 8x 42" and 5x 20" LCD displays with Evertz Maestro Multiviewer
- Up to 8x HD VTRs, Sony HDCAM, Sony XDCAM HD
- 6x EVS HD Disk Recorder LSM XT2 6ch
- Digital Glue: Axon, Evertz
- Video Matrix: Evertz 256 x 256

Audio

- Lawo mc²56 Audio Mixer, 56 Faders
- Audio Router: Lawo Nova 73 212x212 and 114x114
- Genelec Monitoring, 5.1 Surround Sound and Stereo
- CD/MD/DAT Recorders,
- Multitrack: Pyramix Audio Workstation
- Microphones on Customer Request

Intercom

- Matrix: Riedel Artist 144 x 144
- Wireless Talk-Back: Motorola
- ISDN Codec: Glensound

Coach Built

- Length: 14.9m
- Height: 4.3m
- Width (stowed): 2.54m
- Width (expanded): 5.5m
- Weight: 21t



SABC Broadcast Compound

TECHNICAL SYNOPSIS

Uplink

Uplink Equipment

Antenna: 1,8m Vislink New Swift
 HD Encoders: Ericsson Voyager AVP3000
 HD IRDs: Ericsson RX8200
 Power Amplifiers: Xicom XDT400K

Video and Camera Control

Video Format: 1080i/720p
 Vision Monitoring: Sony LMD-8900 and TV Logic LQM-241W
 Vision Mixer: Slate 1000G
 Audio Mixer: Sony MXP 210
 Router: Grass Valley Triton 8x8
 Digital Glue: Grass Valley 8900 Series
 Audio Monitoring: TSL AMU2-8HD

Intercom

Matrix Type: Prospect C6R 6 Channel

Generator

Honda EU30 I

Ü7...

... THE BIGGEST & MOST MODERN VEHICLE OF THE TV SKYLINE FLEET

Maximum space for creativity.

Our flagship combines the requirements of the highest quality standards and largest possible flexibility.

- Ikegami HDK 97A/HDK 970 A
- 4K/3G/HD/SD Multiformat Switcher Kahuna 360
- Lawo MC66 MKII High End Audio Console
- up to 32 workstation in 3 production areas
- the next generation in shape, function and design

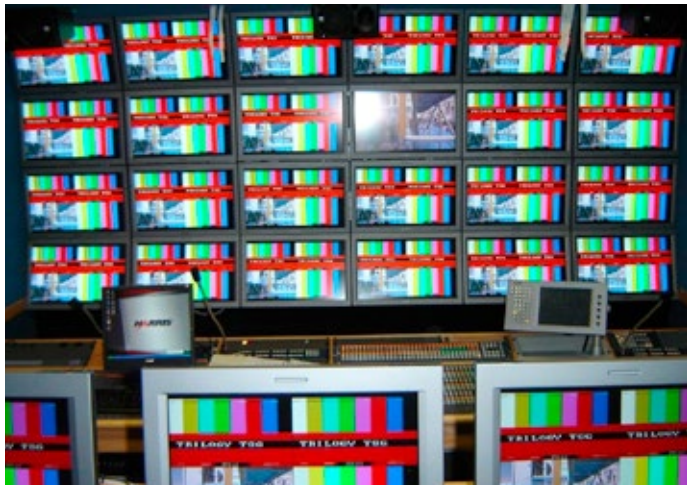




Production Area

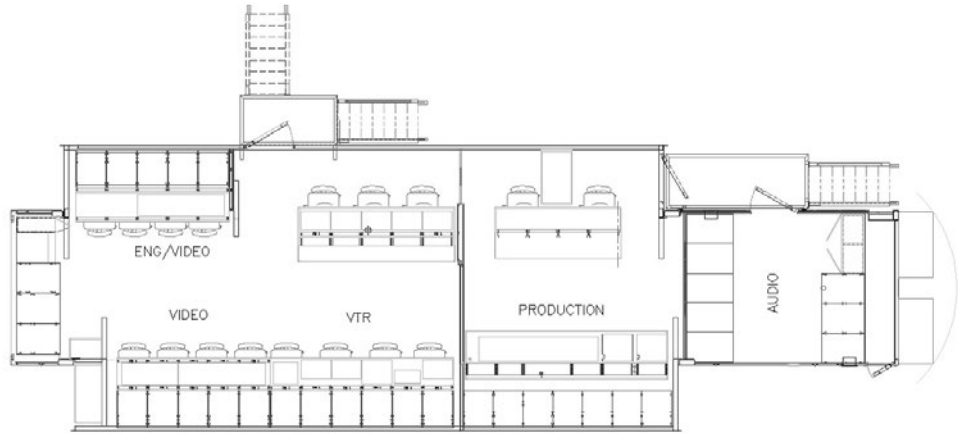


Sound Area



Monitor Wall

Camera Shading Area



Video

- 12x Sony Cameras HDC-1550
- 3x Sony SuperSloMo Camera HDC-3300
- Wireless Camera Adaptor on Customer Request
- Connectors on Cameras, CCUs and Cables: Lemo Fibre
- Lenses from Canon, all Focal Lengths available
- Tripods and Pedestals: Vinten
- Vision Mixer Sony MVS-8000G 3M/E / 8ch DVE
- Character Generator: Harris Inscribe G3
- 8x 42" and 5x 20" LCD displays with Evertz Maestro Multiviewer
- Up to 8x HD VTRs, Sony HDCAM, Sony XDCAM HD
- 6x EVS HD Disk Recorder LSM XT2 6ch
- Digital Glue: Sony and Harris Leitch
- Video Matrix: Snell 256x256

2. Audio

- Euphonix MaxAir, 32 Faders
- Audio Router: Snell 180 x 180
- Genelec Monitoring, 5.1 Surround Sound and Stereo
- CD/MD/DAT Recorders,
- Multitrack: Pyramix Audio Workstation
- Microphones on Customer Request

TECHNICAL SYNOPSIS

SABC 2J HD

OB Van

3. Intercom

- Matrix: Clear-Com 186x186
- Wireless Talk-Back: Motorola
- ISDN Codec: GlenSound

4. Coach Built

- Weight: 21t
- Length: 14.9m
- Height: 4.3m
- Width (stowed): 2.54m
- Width (expanded): 5.5m



Flyaway packed in IATA Cases



Flyaway unpacked



Cameras for Flyaway System



Flyaway Training

TECHNICAL
SYNOPSIS

FlyAway

FlyPacks

Video Equipment

- 6x Sony Cameras EX3 or HDC 1500 depending upon Requirements
- 1x Super SloMo Camera can be accommodated
- Wireless cameras are not included but can be facilitated
- Cameras use Tactical Fibre cables with SC Connectors
- Small Lenses are standard Sony lenses.
- Longer lenses are Canon
- Mixer is Blackmagic ATEM 1 ME Broadcast Mixer
- Monitors in Production Area are 2x Samsung HD 32" Monitors
- Monitors in Camera shading are 3 of Blackmagic SmartView 17"
- 1x Blackmagic 16x2 Multiviewer
- 1x Miranda 8 x 2 Multiviewers
- 2x Sony HD XDCAM VTR
- 1x GVG K2 Solo 3G Hard Disk Recorder
- 1x Apple Final Cut Pro Editing with GVG Edius Editing Software
- 1x Blackmagic 16x6 Router
- 1x Miranda 16x 4 Router
- 3x Phabrix RX 2000 Waveform Monitors
- 1x Black Magic Ultra Scope

Audio Equipment

- Blackmagic embedded audio Mixer with Mackie MCU Pro Control surface or Yamaha LS 9-16 Audio Mixer
- BlackMagic 16x 6 Embedded Audio Matrix
- Miranda 16x 4 Routing Matrix
- Sennheiser and Electro Voice Microphones
- Miranda audio Effects Processors
- Fostex 6301 BX Speakers
- Phabrix RX 2000 Audio Monitor

Intercom

- Intracom 10x 10 VOIP Matrix
- Wireless talkback Uses VOIP on Standard Cell Phones.
- Shure and Clearcom wireless talkback systems are available
- 4 Wire Communication can be via VOIP using standard internet connectivity or AEQ Eagle ISDN Codecs

Special Features

- System is built with redundancy and is transported in standard IATA dimension cases to be taken on board as luggage.



Studio Berlin



Studio Hamburg

STUDIO BERLIN

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LIVE
PORTRAIT

OB Vans
Studios

Media Consulting



Live production – changing technology and new trends

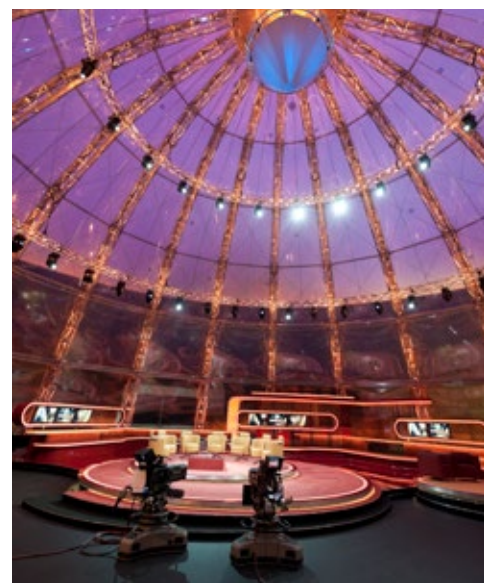
The Studio Hamburg Group's wide range of facilities makes it one of the leading production and service centres for film and television. The company was founded in 1947 in Hamburg – today the corporate headquarters of an internationally active network with three business divisions: Atelier and Technology, Production and Distribution, and Consulting and Service. The Atelier and Technology Division, with centres in Hamburg, Berlin, Cologne and Lüneburg coupled with an ultra-modern outdoor broadcast fleet including HD transmission units, is an outstandingly placed technical service supplier in the film and television sector.

Studios | We offer nine studios at our Berlin Adlershof site – including two large-scale 2,400 square metre studios – with another eight in Hamburg. The latter include a 1,000 square metre commercial studio with a three-sided infinity cove whose total length of 16 metres makes it one of the biggest in Germany. Production generally follows the same pattern: Either we use on location flypack production units or HD OB vans – for example in football stadiums – or we make the permanent production facilities in one of our studios available and test in advance how best to fulfil specific production requirements.





Live productions | We offer all kinds of live or live-to-tape TV production, ranging from talk shows or entertainment programmes to major sports events and live reporting. Productions include “Günther Jauch”, “Anne Will”, “Hart aber fair”, “The Voice of Germany”, “Circus Halli Galli” and “Echo” as well as the German Football League and the DTM German Touring Car Championships. We also produce the football Champions League for Plazamedia. In the reporting field we transmit events for business clients, such as supervisory board meetings of major corporations or Web TV broadcasts. Our Berlin studios also work regularly for clients from the world of fiction, such as “Soko Wismar” and the recent international cinema production “A Hologram for the King” starring Tom Hanks.



We have been a regular part of the football European Championships and World Cup since 2006. Our most recent major project was the 2014 FIFA World Cup in Brazil, where a team of 60 staff broadcast a total of 19 games from stadiums in Belo Horizonte, Salvador de Bahia and Brasilia. We were commissioned by SONY Europe, which acted as overall technical service provider for Host Broadcast Services (HBS). HBS was responsible for broadcasting the whole of the World Cup on behalf of FIFA. More than 2,500 hours of footage was produced altogether.

Camera systems and production technology | As a rule we use Grass Valley cameras for our broadcast work, but we are perfectly comfortable with the technical demands of 4K productions too.

Major sporting events involve an OB unit with up to 30 cameras, while major entertainment shows require up to 24 cameras.

At our Berlin studios we have two modern permanent production systems, one large and one medium sized. They are used on site for big entertainment programmes or talk shows. On location we work with OB vans or flypack production units, but these are also used at our studios if we have to run several productions in parallel. We often use the flypacks internationally, for example for “The Bachelor” which was produced in South Africa.

Remote production | The Remote Production section is a further part of the Studio Berlin portfolio, where Axon and Ross are longstanding valued partners of ours. We also do our own production work using remote cameras. The advantage is that one, two or three people, depending on the set, can operate a large number of cameras. This technique provides a necessary increase in efficiency and is also suited to mobile use. It is of particular interest where production budgets are tight, but also lends itself to sports such as ice hockey. However, when it comes to rapid movement, remote cameras cannot yet deliver the high quality images viewers are used to.

Workshops | In addition to studio facilities and broadcast technology, we also have our own set construction workshops. Our workshops are world leaders when it comes to stage sets for musicals, such as “Rocky”, “Das Wunder von Bern” (Hamburg premiere late in 2014), “Mamma Mia” or “Hinterm Horizont”. Wagner operas (Bayreuth Festival), international galas such as the Eurovision Song Contest and shows from the Friedrichstadtpalast in Berlin (“Show me”) are just as much part of our repertoire as studio sets, historical scenery and atmospheric installations for museums and trade fairs. The Studio Hamburg workshops are a one-stop shop for all set requirements, from initial sketches, construction plans, project management and set building to on-site installation and support.

Our workshop services encompass project management including planning and construction (technical drawing and 3D construction, detailed 2D and 3D planning and implementation), carpentry, metal shop, lighting and electrical engineering, scenery, painting and sculpting.

Post production | To complete our technical service portfolio, we cover the complete range of post production services on more than 4,000 square metres of production space. Our central data storage (SAN) system means we can guarantee an efficient workflow – from wet-gate scanning, through editing, colour correction and sound editing to broadcast tape production – enabling time-saving multiple HD-processing of projects in real time.

Our clients profit from Studio Hamburg’s efficient structures: Direct, permanent communication between post production, film technology, studio operation and playout departments means our clients can enjoy a smooth production process from start to finish.

EVO.Live

A new paradigm in live production



Dual Functionality

This ground-breaking console can switch between live and post production modes at the touch of a button.

Configurable

EVO.Live is available in chassis, table-top or in-surface consoles, 12 to 60 faders, and scalable processing and I/O.

Exceptional Price Performance

EVO.Live features Fairlight’s FPGA-based Crystal Core engine that delivers high channel and bus counts, low latency and exceptional audio quality.

Beyond Mixing

With enhanced production tools such as sound FX play-out, multitrack recording and playing, external device control and full timecode capabilities.

Customised For You

For the ultimate in customisation, the control surface includes dynamic Picture Keys that can be configured to control virtually any console function.

FAIRLIGHT



NAB APRIL 2014

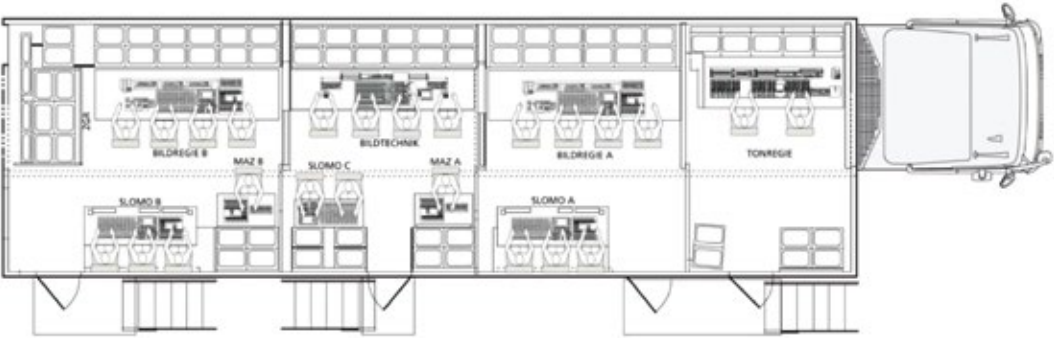
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www.fairlight.com.au

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EUROPE +49 30 259 24 460

CHINA +86 756 229 5521
JAPAN +81 3 5432 4151

KOREA +82 2 7051332

FA032 LPTV AUG14



Production Area



Monitor Wall



Production Area



Sound Area

Video

- Up to 24x GVG Cameras LDK-6000 / LDK-8000
- 2x SuperSloMo Cameras: 2x LDK-8300
- Wireless Camera Adaptor: 4x LDK-5464
- Connectors on Cameras, CCUs and Cables: Fischer Fibre 1053
- Lenses from Fujinon, all Focal Lengths available
- Tripods and Pedestals: Vinten
- Vision Mixer Production A: GVG Kayenne, goin / 4M/E / 4ch DVE
- Monitor Wall Production A: 58x Penta
- Vision Mixer Production B: GVG Kayak HD, 48in / 2M/E / 4ch DVE
- Monitor Wall Production B: 50x Penta
- Character Generator on Customer Request
- Up to 10x HD/SD VTRs, all current VTR formats available
- Up to 7x EVS HD Disk Recorder LSM XT2 6ch
- Digital Glue: Vistek
- Video Matrix: GVG 512 x 512 + VSM

Audio

- Lawo mc²66 Audio Mixer, 48 Faders
- Audio Router: Lawo Nova 73 1288x1192
- Genelec Monitoring, 5.1 Surround Sound and Stereo
- Recorder: CD/MD/DAT
- Multitrack: Eventdriver
- Microphone: Schoeps, Sennheiser

TECHNICAL SYNOPSIS

SBA Ü1

OB Van

Intercom

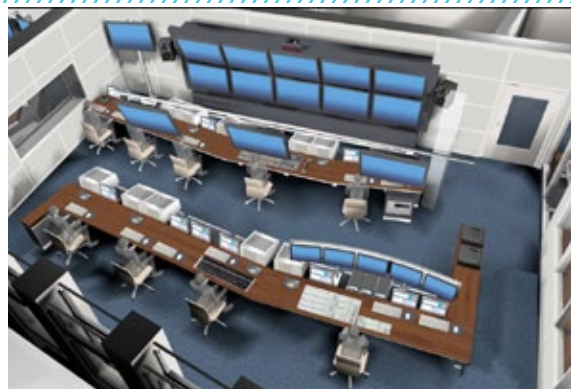
- Matrix: Riedel Artist 256x256
- Wireless Talk-Back: Motorola
- ISDN Codec: 4x Mayah Centauri II

Coach Built

- Length: 13,75m
- Height: 4,0m
- Width (stowed): 2,55m
- Width (expanded): 6,0m
- Weight: 40t



MCI HQ in Hamburg



Design NDR Production Gallery



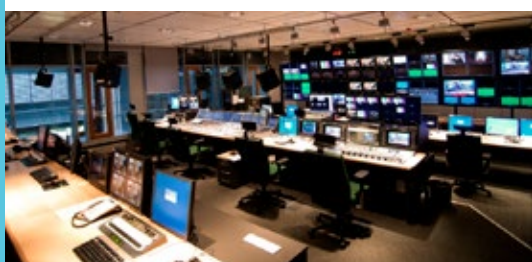
NRK SNGs



JCC OB Van



SWR Studio in Stuttgart



MDR Production Gallery

General Contact

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Visions & Technology

Studio Hamburg Media Consult International (MCI) GmbH is a systems and trading house operating internationally in the field of professional broadcasting and media technology. Using its own in-house resources, MCI provides consulting, planning and construction services for TV, radio, media and event projects throughout the world.

MCI is able to handle projects of almost any size as the main contractor—from a studio to a complete broadcasting centre, from a conference room to a multimedia centre, from an editing station to a networked production system, from a file transfer system to an archiving system, from a mobile control room to an outside broadcasting van. We advise, plan and build complete systems for radio, TV, industry, theatre, shipping, museums, exhibitions, training centres and medicine... We have the solution wherever specialists in the field of sound and vision or data are needed!

MCI was founded in 1977 as a subsidiary of Studio Hamburg GmbH, one of the largest TV and film production facilities in Europe with studios in Hamburg and Berlin.

Media Consult International (MCI) GmbH is the right partner for developing new ideas and concepts. The company's divisions are: Broadcast & Media Systems (systems integration business), Broadcast Consulting and Products (sales and distribution of broadcast products).

At Germany's largest TV production site our team of 50 employees provides creative solutions for implementing the latest technology.

Beyond the beautiful game

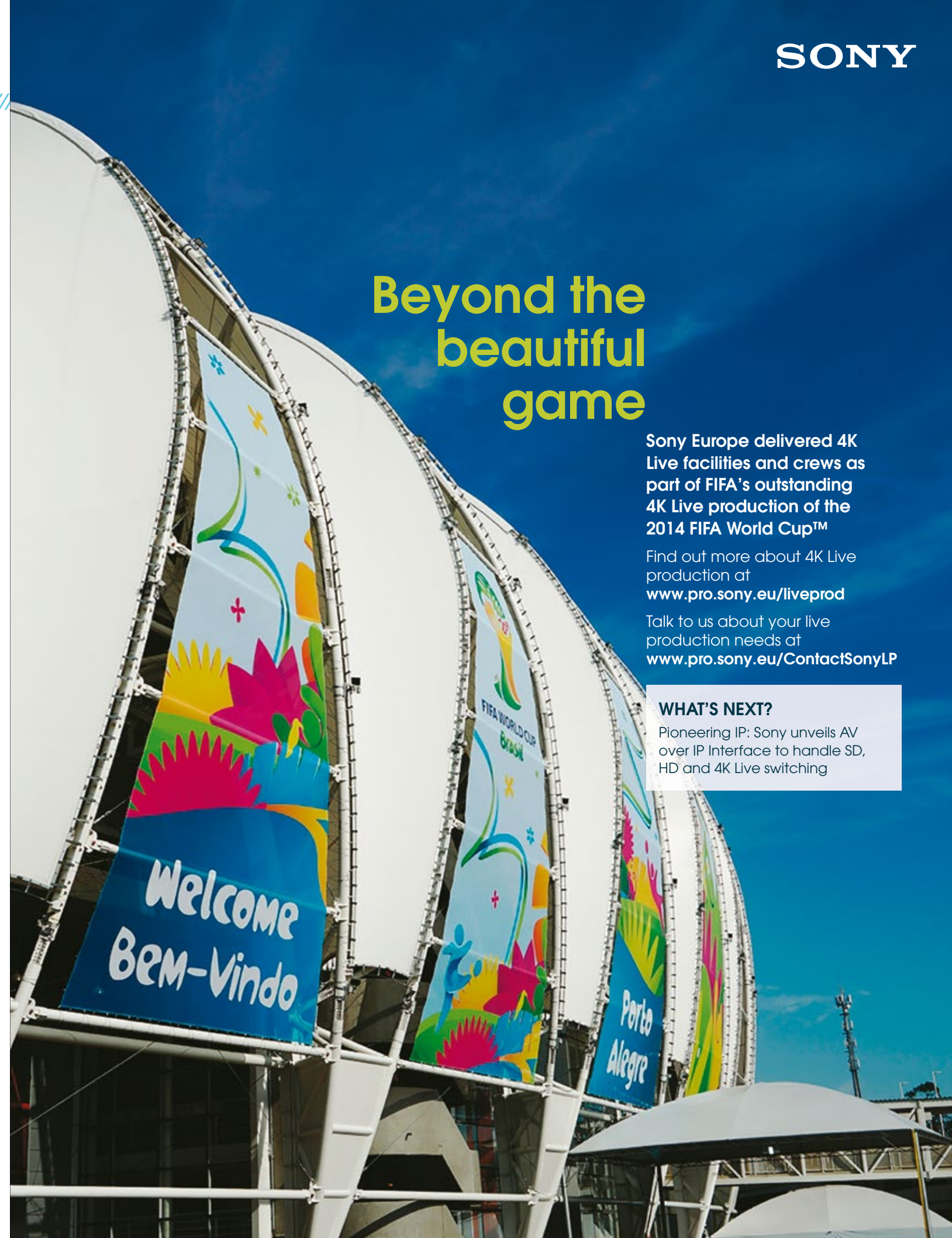
Sony Europe delivered 4K Live facilities and crews as part of FIFA's outstanding 4K Live production of the 2014 FIFA World Cup™

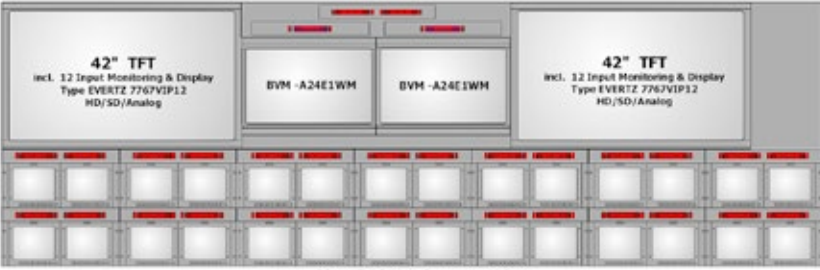
Find out more about 4K Live production at
www.pro.sony.eu/liveprod

Talk to us about your live production needs at
www.pro.sony.eu/ContactSonyLP

WHAT'S NEXT?

Pioneering IP: Sony unveils AV over IP Interface to handle SD, HD and 4K Live switching





Sound Area



Production Area



Camera Shading



Studio Floor

Size: 2.406m²
Length: 62,50m
Width: 38,50m
Height: 10,00m

PA System in the Studio

Mixing Console on Customer Request
PA Monitors on Customer Request

Lighting in the Studio

Lighting Equipment on Customer Request
Dimmer Capacity on Customer Request
Lighting Console on Customer Request

Cameras & Lenses

up to 24x GVG LDK-6000 MKII and 2x LDK-8300 SuperSloMo Cameras
Lenses are by Fujinon, all Focal Lengths available

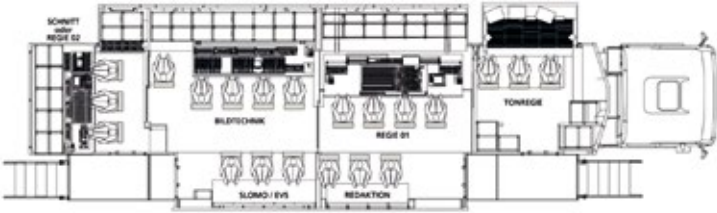
Video Gallery in HDÜ6

Vision Mixer GVG Kayenne XL HD, 90in, 4 ME, 4ch DVE or ABEKAS HD-DVEOUS MX, 4ch DVE
Character Generator Chyron HyperX HD
Monitorwall consists of 10x Sony CRTs and 120x Sony LVMs
VTRs: up to 12x Sony HDCAM and DigiBeta
Disk Recorders: up to 6x EVS LSM XT² 6ch
Video Router: 2x GVG Trinitix 368x512
Digital Glue from Axon
Measurment Equipment from Tektronix
Tripods + Pedestals: Sachtler

TECHNICAL SYNOPSIS

SBA Studio G + Ü6 OB Van

Studio



Audio Gallery in HDÜ6

Audio Mixer Lawo mc² 66 with 120 DPS Channels and 96x AES in/out
Audio Router: Lawo 3072x3072
Monitoring with Geithain 5.1 Surround Sound
Microphones from Sennheiser + Schoeps
Recorders on Customer request

Intercom in HDÜ6

ClearCom Eclipse Matrix 128 x 128
Talkbacks are Sennheiser and Motorola



Monitor Wall

Production Area



Audio Gallery



TECHNICAL SYNOPSIS

SBA Studio H

Studio

Studio Floor

Size: 2,374m²
Length: 56,8m
Width: 41,8m
Height to lighting grid: 12,7m

Cameras

12x Grass Valley LDK-8000 / 8x LDK 8000 Elite
A complete Range of Fujinon + Canon Lenses is available
Tripods and Pedestals from Vinten + Sachtler

Video Gallery

Vision Mixer Grass Valley X-ten 3,5M/E and X-ten 2M/E
Character Generator: Chyron Lex 2 HD
VTRs: 6x Sony XDCAM PDW-HR1
Disk Recorders: DVS 12 Ch. HD
Editing: Final Cut Pro7
Video Router: Miranda Nvision 204x324 + VSM
Measurement Equipment: Tektronix



Audio Gallery

Audio Mixer: Lawo mc²66
Audio Router: Grass Valley 128x128
Audio Monitoring: Geithain
Audio Effects: TC Electronic M3000
Audio Limiter: Jünger Level Magic, TC Electronic DB2, Waves L2
Microphones: Sennheiser

Intercom

Riedel Artist 128x128 Matrix
Wireless Talk-Back: Motorola via Riedel RiFace

Special Features

Teleprompter
Autoscript
Scan-Converter
Pro-Tools Studio

Vision Control

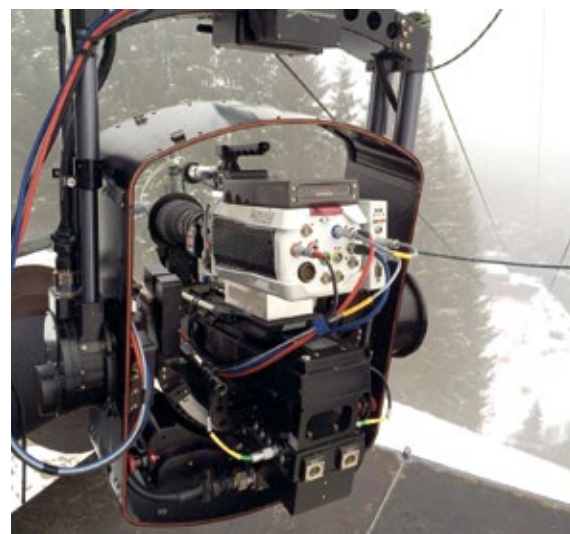


Vision Mixer



A STRIKING HEAD FOR MANY OCCASIONS

RTS Rail&Tracking Systems comes along with a convincing concept by developing specialized camera tracking systems customized for the Nettmann Stab-C Compact remote head.



A fully stabilized camera remote head like the Stab-C Compact offers many possible applications due to the steadiness and rigidity of the system, not to mention the quality of the images, too. But the engineers of the development division at RTS Rail&Tracking Systems in Winnweiler, Germany, continuously accept the challenge to go one step beyond. What can be done to combine the advantages of a stabilized head with amazing camera movements and trackings?

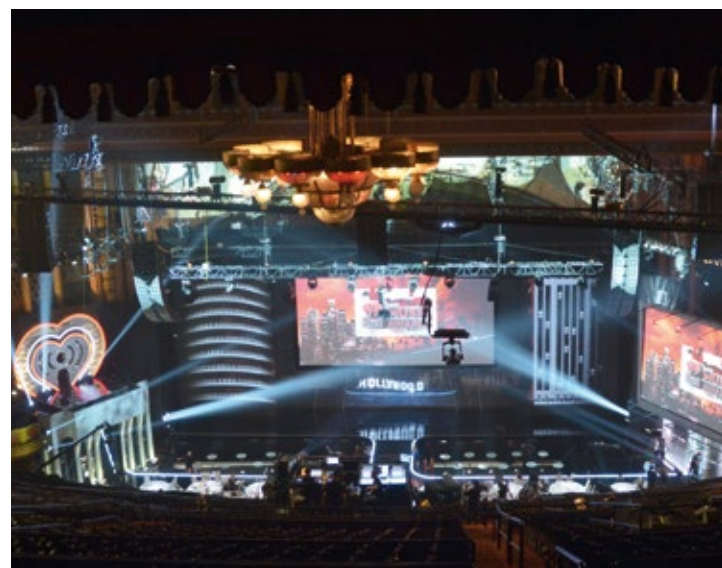
Meanwhile it is impossible to imagine an international Athletic Championship without the precise and fast Trackrunner rail cam system, and RTS Supertower camera columns do their job all over the world. But then it was the Eurovision Song Contest in Baku, Azerbaijan, that came over with a very special request for a high speed winch being able to move on a horizontal track while running up and down. The RTS SpeedWinch, that's the name of the system, was ready just in time and it became a big success.

When audio matters - take the easy way!

jünger



Let our groundbreaking audio processors do the work for you!



TV-Shows, sports, concerts, aerial photography and film – whenever it is important to obtain calm and stable images, RTS Rail&Tracking Systems offers the suitable system. And in the event that the director or the film production has a certain idea in mind how to realize a special point-of-view-shot, CEO Daniel Pflieger and his team often push their limits in order to find a satisfying solution.

In 2014 RTS looks retrospectively at many considerable productions, each of them requiring an individual application with a Stab-C Compact accompanied by an RTS camera tracking system. For example at the Oscars in the Kodak Theatre in Los Angeles the SpeedWinch system was applicated, for the MTV Video Awards a RopeClimber did the job. At the „I Heard“ Music Awards in Los Angeles there were both, a Speedwinch and a RopeClimber, in addition to that a Liftarm ran on Trackrunner tracks along the stage. A very different kind of application got implemented at the downhill ski-run in Kitzbühel with a Stab-C Compact on a two-point system with a Phantom High Speed Camera.

„Throughout the last ten years we have realized that our stabilized remote heads, the Nettmann Mini-C but in the first instance the Stab-C Compact have become the center-piece of most of our developments. So this is why we have to come to the conclusion that it makes sense focussing on this concept for the future“, explains Daniel Pflieger. Success certainly points that. Meanwhile RTS operates four Stab-C Compact systems with a high degree of capacity utilization.



TPC

LIVE
PORTRAIT

OB Vans
Studios

UpLink
Payout

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Close to the Action, close to the Emotion

tpc (technology and production center switzerland ag) is a wholly owned subsidiary of SRG SSR (Schweizerische Rundfunk Gesellschaft). As the technical service provider of SRF (Schweizer Radio und Fernsehen, or Swiss Radio and Television), tpc is responsible for the production and all technical aspects relating to the TV, radio and multi-media requirements of SRF.

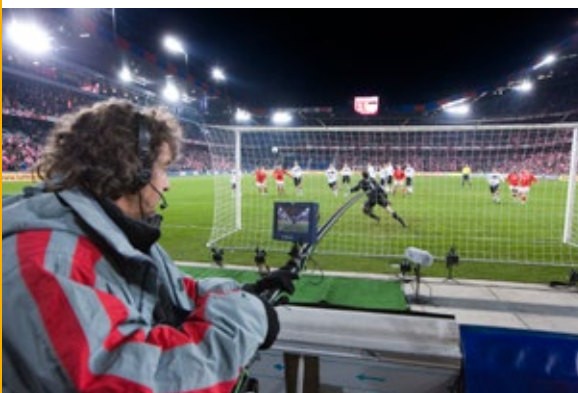
Constantly striving for technical innovation, tpc has become one of the leading providers in the Swiss broadcast industry.

RAI Amsterdam

Conference 11-15 September | Exhibition 12-16 September


 IBC
2014

CONTENTS



Our HD (high definition) infrastructure is state of the art

Including studios from 200m² to 1000 m² and OB vans of various sizes and equipped in a variety of ways. We also provide our customers with news-gathering crews, post production, software developing teams, engineering, technology services and fully equipped workshops for creating props, event installations and exhibition stands.

Large musical productions such as opera, ballet or concerts as well as all sorts of sports event productions are among our many specialties. Depending on the project, we collaborate with other highly qualified specialized industry players. tpc switzerland ag offers its customers full services for broadcast and beyond.



IBC2014 Discover More

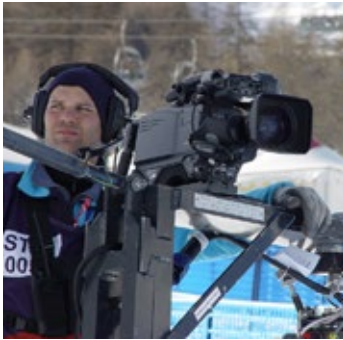
IBC stands at the forefront of innovation, drawing more than 52,000+ creative, technical and business professionals from over 170 countries. It couples a comprehensive exhibition covering all facets of today's industry with a highly respected peer reviewed conference that helps to shape the way the industry will develop.

Also, take advantage of a variety of extra special features included as part of your registration at no extra cost:

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 dedicated to file-based technologies and provides attendees with the opportunity to track the creation management journey
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 celebrating the personalities and the organisations best demonstrating creativity, innovation and collaboration in our industry
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 a tantalising glimpse into the future of tomorrow's electronic media
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 providing the perfect platform for manufacturer demonstrations, ground breaking screenings and insightful, free to attend conference sessions focusing on the latest developments in digital cinema

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Camera Shading Area

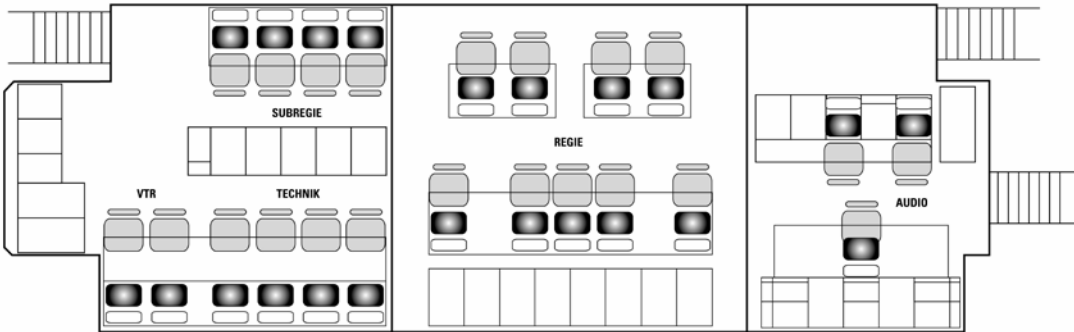


Production Area



SloMo Area

Sound Area



TECHNICAL SYNOPSIS

tpc – HD-1

OB Van

Video

- Up to 24x Sony Cameras HDC-1500
- Connectors on Cameras, CCUs and Cables: Fischer Fibre 1053
- Lenses from Fujinon, all Focal Lengths available
- Vision Mixer: Sony MVS-8000A 5in/48out / 4M/E with MKS-9012
- Character Generator: Vizrt
- Monitor Wall: Sony CRTs and LMDs
- Up to 10x Sony HD VTRs, HDCAM / XDCAM/ IMX
- Up to 2x EVS HD Disk Recorder LSM XT2 6ch
- Frame Stores: Leitch X75 and Snell IQ
- Video Controller: BFE KSC9000
- Video Matrix: Snell 340x416

Audio

- Stagetec Aurus Audio Mischer with 48 Faders and 128 Channels
- Monitoring: Tannoy 800A, 5.1 Surround Sound
- Audio Matrix: Stagetec Nexus Star 700x600 (max 4096x4096)
- Recorder: CD/MD/PC/
- Multi-Track: Tascam 48-96 Channels, Pyramix Ovation
- Microphones: Sennheiser, Shure, Schoeps, Neumann

Intercom

- Matrix: Tellix
- Wireless Talk-Back: on Customer Request
- ISDN Codec: Orban 7400

Coach Built

- Length: 16,5m
- Width (stowed): 2,55m
- Width (expanded): 4,6m
- Height: 4,0m
- Weight: 39t



Production Area

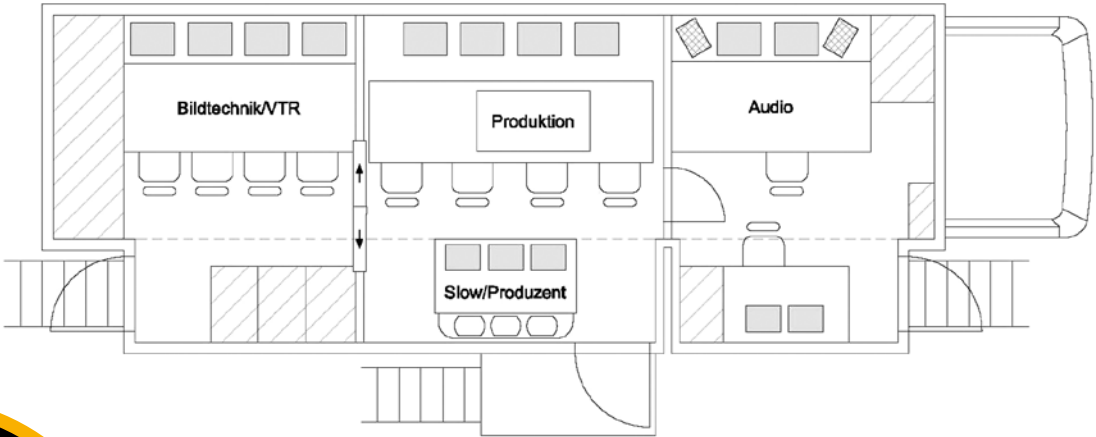


Sound Area

Camera Shading Area



SloMo Area



TECHNICAL SYNOPSIS

tpc – HD-4

OB Van

Video

- Up to 8x Sony Cameras HDC-1400
- Connectors on Cameras, CCUs and Cables: Fischer Fibre 1053
- Lenses from Fujinon, all Focal Lengths available
- Vision Mixer: Sony MVS-8000A 34in/24out / 2M/E
- Character Generator: Vizrt
- Monitor Wall: 12x Sony PVM-2300
- Up to 7x Sony HD VTRs, XDCAM/ IMX
- Up to 2x EVS HD Disk Recorder LSM XT3 6ch
- Frame Stores: Leitch X75 and Snell IQ
- Video Controller: BFE KSC9000
- Video Matrix: Snell 240x316

Audio

- Stagetec Aurus Audio Mixer with 32 Faders
- Yamaha DM2000 Audio Mixer
- Monitoring: Neumann, 5.1 Surround Sound
- Audio Matrix: Stagetec Nexus Star 700x600 (max 4096x4096)
- Audio Effects: TC Electronic M600, DB8, Lexicon 96
- Multi-Track: 48-96 Channels, Pyramix Ovation
- Microphones: Sennheiser, Shure, Shoeps, Neumann

Intercom

- Matrix: Tellix
- Wireless Talk-Back: on Customer Request
- ISDN Codec: Orban 7400

Coach Built

- Length: 12,0m
- Width (stowed): 2,5m
- Width (expanded): 4,6m
- Height: 4,0m
- Weight: 25t



technology and productioncenter switzerland ag (tpc) conceives, plans and produces mobile live broadcasting for events of all sorts around the globe in HD. tpc specialises in sporting events such as cycling, track and field, marathons, triathlons, rowing, sailing, football, ice hockey, and alpine and Nordic skiing, as well cultural productions such as coverage of classical concerts and operas.



Available systems

Short range:

Wireless handheld cameras in HD

Medium range: Terrestrial transmissions for rowing, sailing, city marathons, triathlons, track-and-field events, winter sports

Long range: Relay by helicopter and/or airplane for cycling events, marathons, long triathlons, and winter sports

MADE WITH PASSION



Hoch Zwei is an advertising agency from Rosenheim, Bavaria. „Be different, be successful“ – that's our motto, that's our passion which guides us in developing extraordinary ideas and outstanding forms of communication.

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Concept and text

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www.werbung-text-design.de



EUROVISION SONG CONTEST 2014 REACHES 195 MILLION WORLDWIDE

"Join Us" was this year's motto for the Eurovision Song Contest, which was hosted on Refshaleøen island in the B&W Hallerne, a former shipbuilding hall that was specially converted into a show arena for the contest.

With the Eurovision Song Contest 2014, Refshaleøen was transformed into "Eurovision Island", and played host to a colourful ensemble of artists and ESC fans and once again set new standards for production technology and as an eye opener.





OUTSTANDING PERFORMANCES BOTH ON STAGE AND BACKSTAGE



Thirty-seven countries participated; this includes the return of Poland after a two-year absence and Portugal after a one-year absence. Overall, there were two fewer countries competing compared to the previous year, making thirty-seven participants, the smallest number since 2006. Bulgaria, Croatia, Cyprus and Serbia announced their withdrawal from the 2014 Contest. However more than 195 million viewers across 41 markets tuned into the 59th Eurovision Song Contest in Copenhagen, Denmark, won by Conchita Wurst with Rise Like A Phoenix on behalf of Austria.

Reach has increased with nearly 10% compared to last year, when the contest reached approximately 180 million viewers in Europe and Australia. Figures released the following day showed Eurovision generated 5.4 million tweets on social media, with a peak Twitter activity of 47,136 tweets per minute when Wurst's victory was announced.



Pushing the boundaries

46,320 parameters, 138 universes 1,380 moving lights, 1,500 spot (conventional, LED, effect), 10kms of data cable, 12kms of power multicore cable, 6kms of power cable: Danish lighting designer Kasper Lange relied on 7 x grandMA2 full-size and 2 x grandMA2 light consoles, 19 x MA NPU (Network Processing Unit) and 9 x MA 8Port Node for control. Amongst numerous Martin Moving Lights and PRG Bad Boys, Clay Paky Sharpy Wash 330, Clay Paky Alpha Beam 1500, Philips Vari*Lite VL3500 Spot, Philips Vari*Lite VL3500 Wash and Philips Vari*Lite VL5 were in the lighting rig. Furthermore Robert Juliat Cyrano and Robert Juliat Aramis were used as follow spots. SGM had been appointed an official technical event supplier as the evergreen event arrived in the company's own back yard. This included the huge, classic SGM LED back wall — measuring 110 metres wide by 13 metres high — and it was here that over 350 SixPack blinders were used to dramatic effects.

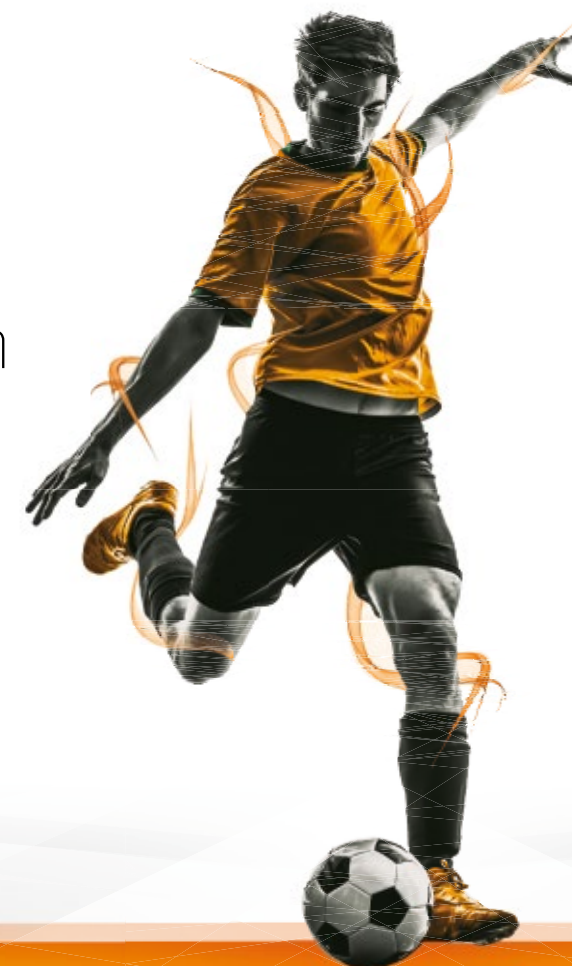


The ultimate live game-enhancement solution

Viz Arena's image-based camera tracking changes the game for football rights holders

The new Viz Arena provides a powerful image-based camera tracking solution for live in-game analysis. This makes it possible to apply graphics on the field without mechanical tracking heads, even from the studio. Data-driven graphics, sponsor branding and analysis content are added live during the match.

Learn more at Vizrt.com
See Vizrt at IBC 2014 hall 7 booth A10



BIG AND SIMPLE



Lange worked with Eurovision's creative director Per Zachariassen to create a huge, structural lighting design that complemented the show's titanic 'diamond' stage. Lange crafted a clean, architectural lighting look that allowed the angular stage to 'open and close' creating a dynamic mix of open and intimate lighting looks.

"The brief for the show can be summed up in two words – big and simple," explains Lange. "The contest was open to almost 40 different nations and each nation's set needed a different lighting look. The challenge for us was to make each song look unique but also to introduce an organic flow throughout the show and not create a 'mash' of 37 songs."



GLP X4's were selected by the LD for the impact they would create when suspended on eight long pieces of truss, with around 2m space in between — specifically deployed as audience effects lights. "Right from the beginning I had been looking for a powerful RGBW LED wash for the audience light," Lange continues. "I have been using GLP impressions for the past four years and I am particularly impressed at the output, zoom and stability of the X4 fixtures." The impression X4 derives its high brightness from the 19 RGBW high output LED's. In its slimline body, with no base unit, the fixture houses a 7°-50° zoom range, full colour mixing (from soft pastels to deep saturates) including CTC and customizable pixel patterns across its front face. Images and content could be delivered to four different display surfaces, including the 3,300m² LED back wall. There was also an LED floor, a 'Cubus' — 18 metres tall, set with LED panels and forming part of the stage design and a film that could either be transparent or opaque (to take projection).

A crucial part of a much larger lighting rig, Lange specified 178 x Clay Paky Sharpy Wash 330 fixtures to frame the giant 110 x 30 metre LED back wall. The powerful punch of the Sharpy Wash added further definition to the wall whilst reflecting the sharp lines of light that ran throughout the Eurovision set.

"For this element of the design I wanted a small but very powerful wash fixture to sharply frame the large back wall LED screen," Lange explained further. "The Sharpy Wash 330 was the natural choice and in fact it turned out to be the biggest work horse of the show. The fixtures are just incredibly reliable - throughout the entire two month production period for Eurovision we didn't have a problem with a single one, and needless to say I was totally blown away."

In addition to the Sharpy Wash 330 Lange specified 32 x Clay Paky Alpha Beam 1500s as part of the huge lighting package supplied by a collaboration of Danish hire outfit LiteCom and global production house PRG.

The Alpha Beam 1500 belongs to the special category of fully automated ACL fixtures, in addition to its high luminous efficiency (185,000 lux at 10m) the fixture also holds a powerful effects engine for shaping and animating the beam for intense long distance and mid-air effects such as those seen in Lange's Eurovision design.

“Because we had a SpiderCam and various other rope cameras filming the stage from above we couldn’t rig any trusses below 30 metres,” explains Lange. “This meant we needed a fixture with a throw powerful enough to cover the whole 30 metres. PRG introduced Clay Paky’s Alpha Beam 1500s to me because of their solid, super concentrated long throw beam. I was very impressed by the fixtures, they were the perfect tool for the job.” And Lange continuous: “On a system of this size there is really only one control choice today – the grandMA2. The console allows multiple users to access the same show file simultaneously. Also we had the great advantage of MA 3D, both for pre visualisation and for blind editing on site. We were quite surprised to experience a stunning 25 fps with the full rig visualised!”

Programmer Nicolai Gubi Schmidt added: “The synchronized DMX output across a big network was a big benefit. The MA part of the ESC network used 17 x Luminex GigaCore switches. Also the ease of working with timecoded shows on the grand-MA2 was great.” Johnny Sørensen, Timo Kauristo, Thomas Brockmann, Leif Hellberg, Rasmus Bremer and Kristian Sørensen worked as programmers. The Creative Director was Per Zachariassen, the Head of Production was Kamilla Monies, the eye-catching set was designed by Claus Zier and the show’s Creative Director/ Content Producer was Nicoline Refsing.

Reflections on Eurovision Island

For the audio transmission of the show host broadcaster Danmarks Radio (DR) relied on Sennheiser’s Digital 9000. 96 channels of this digital wireless microphone system were deployed for the contest, the VIP area and the press centre which included part of DR’s own 24-channel Digital 9000 system. Then added to this were 28 channels of the 2000 Series for the artists’ wireless monitoring. Unfortunately, the B&W Hallerne on Eurovision Island proved to be an incredibly difficult environment for all users of RF wireless, not only for wireless microphones and monitoring systems. Jonas Næsby, RF specialist with Sennheiser Nordic, was on site for DR to provide assistance to the broadcaster with the microphone and monitoring set-up. “We knew that the available spectrum was very limited as 22 TV channels were already fully occupied. This made frequency planning slightly difficult – especially as wireless mics were not the only devices that needed spectrum,” explained Jonas Næsby. “However, the biggest challenge we faced was unquestionably the hall itself.” Both the walls and roof of the huge shipyard are made of metal – as were the stands that were specially erected for the audience of 12,000. The floor is made up of heavily reinforced concrete and this proved to be considerably more critical than that of standard venues. “Never before have I encountered such a huge amount of reflections and if somebody had told me that they knew of an arena that could affect RF transmission this much then I would never have believed it prior to this experience,” continued Jonas Næsby. With a length of approximately 175 metres and a height of 70 metres, the metal hall caused reflections that partially ran over 300 metres and then hit the receiving antennas with a considerable delay as compared to the direct signal. However, the usual amount of damping did not

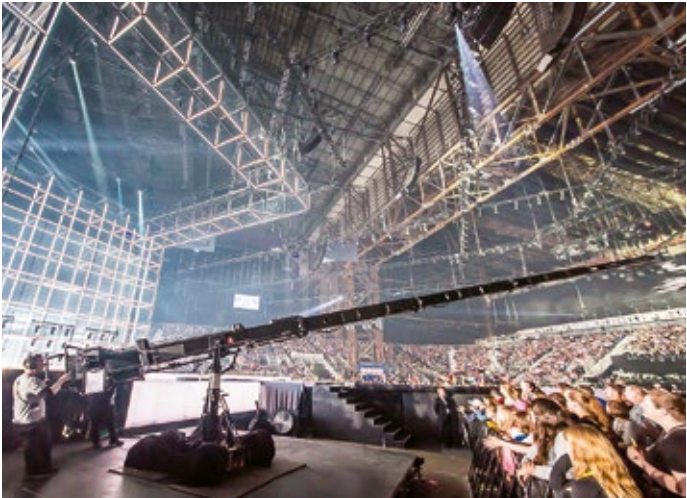
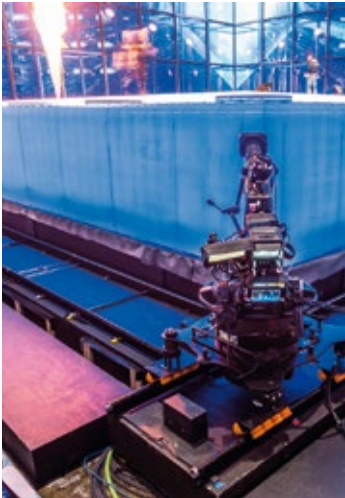


occur: the indirect signals had much higher signal strengths than typically encountered in music venues. This phenomenon was caused by the metal walls and ceiling, which formed corner reflectors and boosted the signal by in-phase additions.

Special solutions for the B&W Hallerne

The wireless technology also had to battle with the general frequency situation in Denmark and nearby Sweden: “Unfortunately, having a lot of reflections within the hall does not automatically mean that your hall is entirely shielded against the outside,” explained Jonas Næsby. It proved to be quite the opposite as there were enough gaps and also wooden elements to let RF in – with some frequencies more intense than others. “As an example, in addition to the 22 fully occupied TV channels that we had to cope with, there was a relatively wide and loud test signal that appeared out of nowhere at irregular intervals and would then disappear. In total, we co-ordinated some 150 microphone and in-ear frequencies, around 100 of which were used for the actual TV show production. The remainder were used at the VIP area, the press centre and so on. If the Digital Dividend II had already been in place, we would definitely not have had sufficient spectrum.”

“We had pretty much optimised everything that was there to be optimised: the fine-tuning of the Digital 9000 system, the antenna positions, everything. And of course conditions improved a bit when the audience was in place,” continued Næsby. “In addition, we had also adapted the digital signal processing of the system which meant that even signals that arrived at the receiver extremely late and with high signal strengths were correctly combined with the RF signal that had arrived earlier. This meant that the Digital 9000 firmware was able to



detect such critical instances and could cope with such extremely rare problems. This could not have been achieved with an analogue system and in fact would neither be possible with just any digital system.”

Speciality Cameras

In addition to a RTS Liftarm on rails RTS again operated the RopeClimber running on 80 meters of tracks mounted in a hanging position. The RopeClimber slid smoothly through the Arena with an amazing speed of 8 m/s while also moving vertically by 2 m/s. RopeClimber was equipped with the Nettmann STAB-C Compact fully stabilized remote head including Broadcast camera.

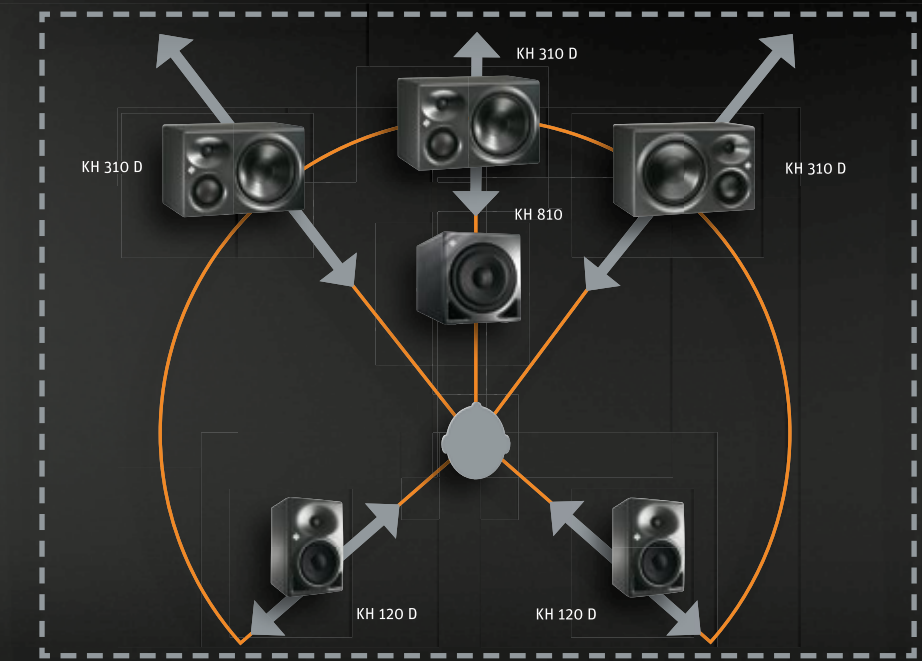
For the first time this year Skywalker Systems delivered an 8wire 3D camera system with speeds up to 10m/s providing smooth free flying and motion repeat controlled flights over the audience and over the stage, as well as a 4wire 2D camera system with speeds up to 6m/s above the stage and which could drop from 30 Meter height right in into the action! Both rigs were flying with a full stabilized 3 axis Libra remote head from Camera Revolution UK. Visual overlays were used in the motion controlled shots to provide even more stunning looks during the broadcast of this amazing production. During rehearsal and shows, the Skywalker Systems were flying over 300 Kilometers and in the 3 live shows Skywalker had around 350 shots of which 90% were already preprogrammed to the precision of a centimeter. A total amount of 2000 meters of rope were moving through the venue while both rigs were flying into action!



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AND THE WINNER IS...



Not one bad seat in the house at Eurovision

Eight projection screens measuring 6.5m each and 130 flat panel displays were installed in the auditorium, green room and off-stage areas, to ensure waiting contestants and the audience didn't miss a single note or vote from the show. In close collaboration with Panasonic, AV Center Copenhagen managed to meet the organiser's high expectations by providing a reliable, state-of-the-art technology solution at an extremely competitive cost. Traditionally, the voting announcement during the Grand Final is the most popular element of the three live shows. Overall, the Grand Final of the Eurovision Song Contest achieved an average market share of 37.3%, more than twice the average prime-time market share. Denmark (89%), Austria (53%), the Netherlands (65%) and the United Kingdom (45%) saw the highest Eurovision Song Contest market share of the past ten years. At any given moment, an average of 61 million people were watching the show, compared to 55 million watching last year's Grand Final on average. The Grand Final saw an average market share of 41.6% amongst young adults, compared to 39.8% last year. "These numbers show that the Eurovision Song Contest is very much alive across Europe, and that our audience is getting younger. This is crucial for the long-term success of the contest and important for the contestants," says Jon Ola Sand, Executive Supervisor of the contest on behalf of the European Broadcasting Union. 37 public broadcasters participated in the 2014 contest, which was transmitted live over the EUROVISION and EURORADIO networks via EBU Member DR. For the first time, the contest was also licensed in New Zealand and Canada. "For the Eurovision Song Contest 2014, we invited viewers and fans to #JoinUs - and we're so happy that they did. On behalf of the entire team at DR, I'm proud to say that we have surpassed our own expectations for reach," says Pernille Gaardbo, Executive Producer of the contest in Denmark.

Photography ESC 2014 © Ralph Larmann, www.larmann.com

Eurovision 2015

Vienna will host the 60th edition of the ESC

Next year's contest will be hosted in May 2015 by Austrian public broadcaster ORF. "Vienna is the city of music and arts in the heart of Europe. Together we will do everything to assure a successful 60th Eurovision Song Contest," says Director General of ORF, Alexander Wrabetz.

"We are very pleased with ORF's decision to choose Vienna as the host city of the next Eurovision Song Contest," says Jon Ola Sand, Executive Supervision on behalf of the EBU. "We are confident the city has the experience, people and the facilities to host the world's foremost entertainment event. With the cooperation between Vienna, ORF and the EBU, I'm sure we'll see three amazing shows in May."

ORF gave several cities the opportunity to bid to host the contest next year. In the final round, it was Vienna, Graz and Innsbruck still in the running. All candidates presented concepts for the implementation of large-scale events to ORF. Based on those, the final decision was taken in favor of the Wiener Stadthalle. It is located in the 15th district of Vienna and it was designed by the Austrian architect Roland Rainer and built from 1953 to 1958. The arena has an overall seating capacity of approximately 16,000 people.

The Semi-Finals of the 60th Eurovision Song Contest are scheduled to take place on Tuesday 19th and Thursday 21st of May, the Final is scheduled for Saturday, the 23rd of May.

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CONTENTS



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INDEX

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Canon
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Clear-Com
clearcom.com

Cobalt
cobaltdigital.com

Datavideo
datavideo.info

Delec
delec.de

DirectOut Technologies
directout.eu

ES Broadcast
esbroadcast.com

17 **EVS**
evs.com/XPLORE

13 **Fairlight**
fairlight.com.au/product/evo/

129 **Fujinon**
fujifilm.eu/fujinon

63 **Genelec**
genelec.com

33 **Georg Neumann**
neumann.com

89 **Grass Valley**
grassvalley.com

9 **Guntermann & Drunk**
gdsys.de

26 **Hoch Zwei**
werbung-text-design.de

51 **IBC 2014**
ibc.org

U3 **ihse KVM**
ihse.com

93 **Imagine Communications**
imaginecommunications.com

41 **Jünger Audio**
jungeraudio.com

55 **Lawo**
lawo.com

117 **Lemo**
lemo.com

27 **Live-Production TV**
live-production.tv

25 **LiveU**
liveu.com

59 **Neutrik**
neutrik.com

73 **Riedel**
riedel.net

U4

161

79

97

191

133

151

181

175

121

U2

171

45

11

193

19

23

37

RTS Omneo
rtsintercoms.com/omneo

Sennheiser
sennheiser.com

snell A Quantel Company
snellgroup.com/maverik

SommerCable
sommercable.com

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Studer by Harman
studer.ch

StudioTech
studiotech.be

TV Skyline
tv-skyline.de

TVC broadcast system integration
tvc.tv

vizrt
vizrt.com

69

139

135

29

165

15

21

109

143

155

101

187

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