

W8LM Takes Arena to the Top



Holland's flagship stadium, the Amsterdam Arena, home of soccer club AFC Ajax, has unveiled its €1.4 million acoustic and sound system upgrade — exactly ten years after the stadium was built.

Central to the upgrade programme are a new digitally distributed sound system, the provision of 216 x W8LM line array enclosures, a huge investment in acoustic material and baffles and the engineering of custom rotatable mounts so that each cluster can be physically swiveled independently, optimising each event and enabling accurate delay

times to be set.

The new infrastructure, designed to make the venue more compatible with staging world-class concerts, was commissioned in time for the sell-out appearance of Robbie Williams in July, and the system's flexibility and 'plug and play' characteristics were immediately given an unqualified thumbs-up by Williams' system tech, Sherif el Barbari.

The installation is a triumph for the technical team and the months of preparation invested by the consortium of Dutch music promoter MOJO Concerts, installation company TM Audio and acoustic engineers Peutz. Installation project engineer was Huib de Bruijn from Ampco/Flashlight Group R&D company TeamProjects.

Aided by the thousands of square metres of special sound absorbent materials to improve the quality of the acoustics, Huib de Bruijn's task was to further reduce the reverberation time and provide extended coverage to the two upper rings and underbalconies of this steeply raked stadium. The W8LM's are designed to provide this, reinforcing incoming productions and doubling as stand alone public address/voice evacuation system.

The system can be adapted to the position of the stage. During football matches or presentations in the round, the loudspeaker clusters form a circle with the centre of the stadium as its virtual central point. When a stage or other source is placed at north or east side of the stadium, the clusters will be rotated accordingly, with all delay and signal path settings preprogrammed.

Huib de Bruijn explains that the distance from the pitch to the top of the PA hangs is a colossal 33 metres. "Most visiting productions generally only carry enough PA to cover the lower tribunes," he says, "and so the performance and coverage of the W8LM's becomes vital."



Each loudspeaker cluster is individually addressable from the computer network with a Peavey MediaMatrix NION signal distribution system providing a pristine signal to all 52,000 seats in the stadium.

Huib de Bruijn traced the background to the contract. “Amsterdam ArenA needed improvement fairly quickly because there had been complaints with the acoustics. The old Philips system was only intended for fire alarm and voice evacuation. We have a long history here and Ampco had a rental system in use here for many years to increase the dynamic range for music presentations.”

After TM Audio MD Marc Kocks had sold the concept of a permanently installed system that would interface with incoming production, Huib de Bruijn designed the scheme, modelling the system in EASE. Working under Kocks his team arrived on site in March this year with Engine, the Flashlight Group’s service and installation dept. Six weeks later the job was complete.

The installation includes around 300 metres of sound baffles, comple-menting the acoustic curtains and having a particular impact on the low end.



TeamProject conducted delay projections in EASE and used SMAART for other simulations and measurements before setting up the Martin Audio system using the company’s ViewPoint™. They now have delay times programmed correctly for any L/R situation. The principle is based on a pre-delay into which the preset is loaded. With the first cluster set to zero the incoming system can be calibrated and further delays aligned to that.

In total, there are eight individually addressable hangs of 14 x W8LMs at each end and six hangs of 16 x W8LM enclosures along the sides. All loudspeakers are supplied in a black, customised weatherised finish.

Presently the 120kW sound system draws 3 x 70 amp feeds. There are 19in Crest CPi network-controlled amp racks (running Cobranet-compatible NexSys V4 software) on the gantries at both the north and south ends; these drive the line arrays while the six amplifiers in the technical room, with its giant patchbay, power the 48 x C115’s in the VIP rooms and the remaining amplifiers drive the concourse speakers. All the racks are CobraNet

connected, with a redundant loop.

In fact there is ample redundancy built in, with the NION presets fully backed up in a second device. “There is a redundant loop and six HP ProCurve switches,” Huib explains. “If one NION fails it flips to the other. The amplifiers are fitted with CobraNet modules so if the ethernet then fails it switches to the analogue system which is driven by XTA processors.” As a final backup there are two motorised generators in the basement — and 80,000W UPS!

Remote wireless 5GHz LAN-equipped laptops running NION NWare software, allow system techs to walk the stadium, making changes to the gain structure, tweaking delays and EQ from any location (depending on whether the system is configured for concert or match mode). It was this feature that had particularly impressed Sherif el Barbari.

Run without compression or further LF boost, the Martin Audio W8LM system provides a highly-audible solution, with impressive dynamics, clarity and speech intelligibility.

The conclusion is that the contractors have met their objectives with interest; the sound quality in the stadium has increased dramatically and is both multi-functional and versatile. Each section of the public area is now targeted by a cluster of Martin Audio W8LM's (with appropriate infills and under-balconies) and overall control is achieved via a computer network.

But the most important people are The Amsterdam ArenA investors, and Huib de Bruijn reports that the board have been hugely impressed, with Facilities Manager, Henk van Raan, remarking instinctively on hearing the new PA for the first time, 'Whatever's happened to the sound?'"