

## Frankenstein

Mondo

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Page 1 of 1

**NATIONAL THEATRE****Company: Funktion One****Location: London, UK**

The National Theatre's stage version of Mary Shelley's Frankenstein proved a huge success, with every show sold out for the entire run from February to May 2011. The unusual prospect of the two lead actors - Benedict Cumberbatch and Jonny Lee Miller - swapping roles nightly was a draw for audiences, but so was the Funktion One audio system which delivered the big, highly dynamic sound that was fundamental to the play's sense of drama.

Director Danny Boyle approached electronica duo Underworld to score the production, and it was the band's Rick Smith who then contacted Funktion One's John Newsham.

"Rick asked me to come on board as sound consultant to advise him on a sound system for the production," said John. "He was thinking in terms of really big dynamics, wide stereo and some thunderous and really deep bass for the music and sound effects, and was also looking to achieve exceptional clarity from the voice reinforcement system."

Working closely with the National's Olivier Theatre Head of Sound, Ed Ferguson, John and Funktion One partner Tony Andrews specified a system which comprised six of Funktion One's recently-introduced R3SH mid / highs, two F221 subs per side, and a pair of R1SH high frequency units for the extreme top corners of the circle.

Two pairs of Res 4's were also flown upstage for additional stereo sources, with a stack of four F218 and four IB218 subs driving a pair of Double Infrahorns. Meanwhile, a voice system of 11 F55 ultra-compact, full range units and five R3SH ensure the room is covered in its entirety.

The stage set was extensive, spreading into the auditorium itself, as well as camouflaging the sound system, rendering it invisible. John explained the intricacies of the bespoke work: "We were asked to fit the main stereo system into an extremely small space on the proscenium wall where there is a narrow walkway with a hand-rail. We built a special flying frame for the R3SHs, which clamped to the structure and held the array in the correct, point source, arrangement. The individual horns

could then be finely adjusted to get the dispersion perfect.

"The horizontal coverage was excellent, with great stereo coverage in every seat, meaning that Rick could use some really interesting panning effects when mixing the soundtrack. We marked the area on the scenery where we needed the sound to go through, and the set department let in an area of acoustically transparent gauze. There were two small areas in the upper corners where the highs were slightly obscured by the set, so we flew a pair of Res1.5SH horns, running from 520Hz up, to fill in.

"The F55's performed perfectly as front fills covering further in the audience than is normal in this venue, therefore allowing much tighter timing of the voice clusters. The F55 has a pair of 5-inch cones without the normal small HF tweeter and passive crossover which distort the phase response, and has a very natural voice sound. The R3SH is also substantially phase flat throughout its working band, and with no system EQ to mess with the phase, this gives an incredibly natural sound. These facts in combination with the careful time delay set up by the production's Associate Sound Designer, Ed Clarke, meant that the illusion that the actors were performing un-amplified was astonishing."

Five F1/XTA XO4A, one XTA DP448 and three DP226 audio management processors control the system which is powered by a total of 22 E Series amplifiers. Ed Clarke and John tuned the system, with XTA's AudioCore software being used for system control. "Using the XTA processors and AudioCore allowed the system to be tuned very quickly," said John. "Of course they are ultra-reliable and the sound is excellent."

Operated by Matt Berry, the system certainly made a significant contribution to the sense of drama of this latest production of Mary Shelley's timeless morality tale. "Theatre staff have said that they were extremely happy with the sound, and the guys on the crew were really fired up at having the system in there," said John.

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