TiMax Application Example - Sticklestad, Norway

The Premise

Very few people in history can claim credit for founding both the Church and the State of their nations. Yet King Olaf II did precisely that for his wild, beautiful country of Norway. He still reigns there as its patron saint.

During his stay in England, his contact with English monks and lay people convinced him that his country could benefit greatly from Christian values. He decided (at age 20!) to return home and establish a single kingdom based on justice andmercy.

So in 10 15, Olaf 11 returned home with 120 followers, and subjugated the land in a lightning campaign.

Olaf s system came crashing down in 1028, when the powerful Anglo-Danish King Canute the Great invaded Norway, and overpowered all opposition. Olaf went into exile in Sweden.

The turning point came In 1030, when King Olaf led a small force of troops back home and confronted a much larger force of rebels at Stiklestad, about 65 miles northeast of Trondheim where he was killed in that battle.

St. Olaf became the patron saint of the country and the Battle of Stiklestad was truly the end of the Viking period in Norway.

For the last 40 years a passion play retelling the story has been staged in a man made amphitheater at Stiklestad to an annual audience of some 20,000 people, and is the largest regular outdoor event in Norway.

The Challenge

With the advent of the use of radio microphones and sound reinforcement came a new problem. With such a large stage, the necessary auditory cues to let the audience know who was speaking were missing, The job for TiMax was to help the audience to hear where to look.

The Approach

Ground stacked loudspeakers (UPA1P) were placed in 7 positions in an arc along the front line of the stage, while a further 4 loudspeakers were hidden in the houses on the set. An additional arc of 12 delay speakers split into 3 channels were pole mounted towards the back of the audience area for coverage of the rear seats.

The TiMax Solution

The stage area, some 30 meters wide by 30 meters deep was split up into several zones and a level / delay relationship (Image Definition) to the speaker system was set up for each zone so as to focus the sound reinforcement system back to the area on stagewheretheactor was speaking.

During rehearsals the movement of the actors was blocked into the TiMax computer so on a cue by cue basis the levels and delays to the speaker system for each microphone were corrected for the position on stage of the actor.

A similar approach was taken for the orchestra. The instruments were localised to either the left or right of the pit.

The Tricks

The use of loudspeakers built into the set helped firmly establish upstage localisations as well as providing sources for on stage sound effects.

The set up of Image Definitions was achieved using calculation from measured distances and then verified with listening tests using impulses and music program.

Distances between on stage action area and loudspeaker positions were measured using laser measurement tools, and converted into time with an added overdelay factor of around 20mS to give the action area depth and breadth.

TiMax cues were triggered by MIDI program changes generated from a Yamaha 02R console allowing the operator to mute and open mic channels and to change the assignment of microphone channels to TiMax inputs on a cue by cue basis as required, all on a single button press.