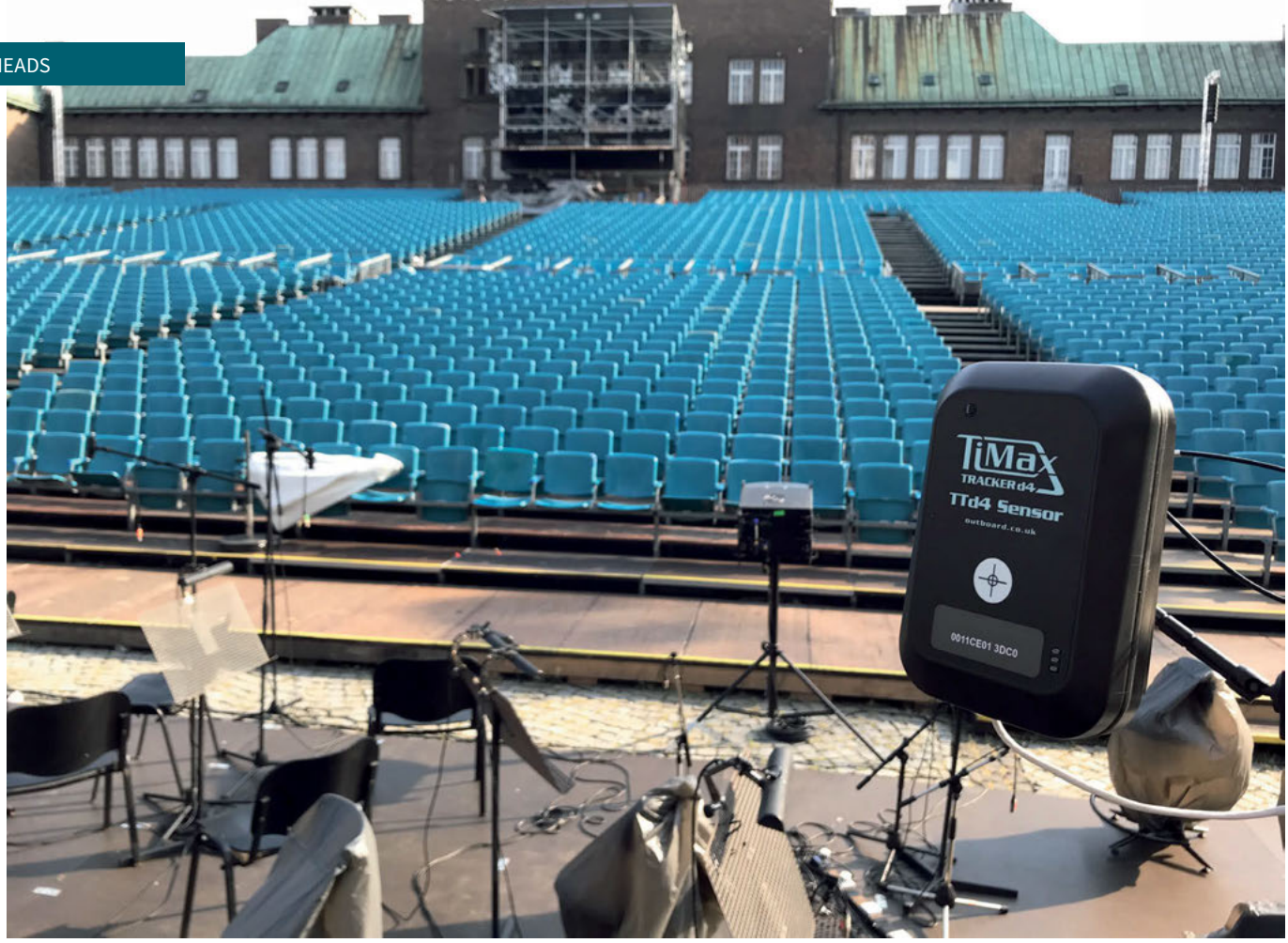



# TIMAX **TRACKERD4**

*Out Board's Dave Haydon discusses why the TiMax TrackerD4 is set to change the resolution and accuracy of spatial audio as we know it.*

**When did development for the TiMax TrackerD4 begin?**

The TiMax TrackerD4 is a next-generation evolution of our original TiMax Tracker system, which was introduced around eight years ago. It has been very successful and is still running on many stages worldwide, but we noticed the technical and commercial environment changed. The 6-8GHz UWB RF signal bandwidth it occupies was beginning to get encroached on by other control technology– ie. for triband DMX, comms, and stage machinery. We could filter those out but it was getting increasingly crowded and we were looking for greater robustness in the digital RF data.

At the same time, we identified potentially significant market growth if we could get it cheaper and even more accurate, not least because a new wave of spatial audio was increasing demand for a practical, viable stage tracking system for audio.

**What are the primary mechanics of the stage tracking control system?**

Using the same UWB digital RF science as our original Tracker system with completely new technology – the TiMax TrackerD4 has a robust tag ID-transmission system that allows us to pulse each tag at potentially up to 40 to 50 times per second leading to a high degree of accuracy and responsiveness. Actors wearing the Tags are picked up by six or eight sensors around the stage and auditorium, which analyse their transmissions to locate them using both Angle Of Arrival (AOA) and Time Difference Of Arrival (TDOA) analysis.

Only two sensors need to see a Tag for accurate tracking to occur, so having multiple Sensors provides a high level of redundancy to mitigate blocking by performers' bodies or chunky and metallic scenery elements.

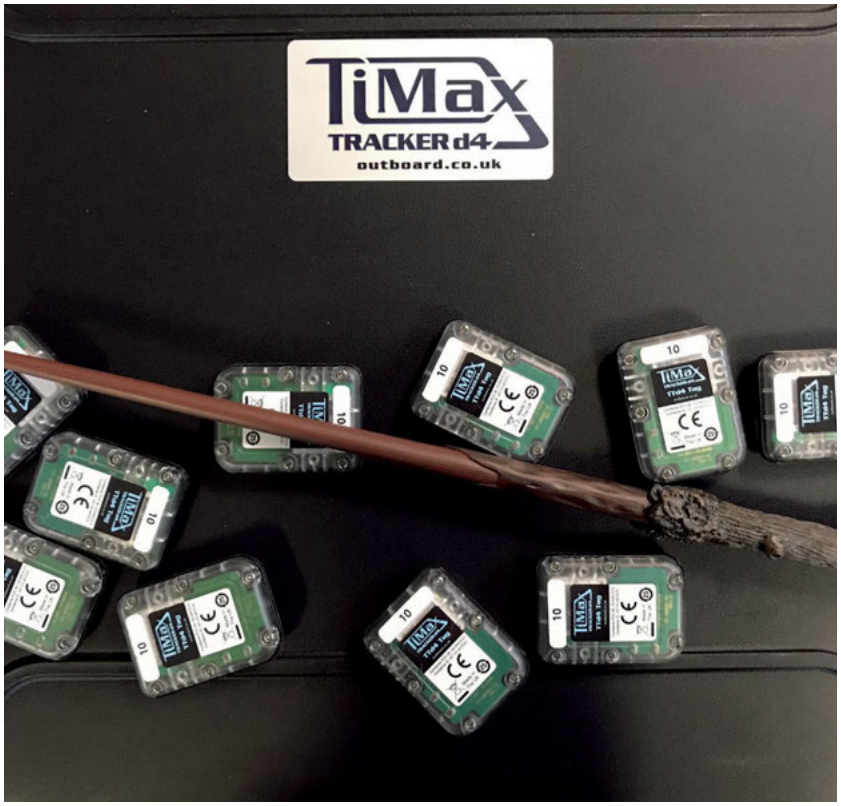
**How does TiMax TrackerD4 integrate with TiMax SoundHub?**

The stage tracking control talks to TiMax SoundHub via industry-standard OSC XYZ Pan messages. Individual desk channels or group direct-outs feed the TiMax inputs, usually via Dante or MADI. The TiMax SoundHub spatialisation delay-matrix has special HARDCore FPGA delay-morphing algorithms that allow it to localise and pan moving sources and effects transparently using varying delay as well as level, to make the immersive imaging effective across an entire audience whilst still ensuring even coverage. TiMax has a cueing system that allows this to be managed manually or remotely from external show control such as QLab, and many shows are blocked and cue'd this way, but if it gets really busy with a high number of moving sources, TrackerD4 is the holy grail as it liberates half the sound engineer's brain from cueing to focus on the mix balance.

**How does TiMax TrackerD4 compare to other immersive sound products?**

Most other immersive audio processor manufacturers do not also offer their own tracking solution, although they may have alliances with one or more other third-party systems. TiMax offers the only fully integrated solution, however at both ends of the pipe, our TrackerD4 Translate application allows us to control other brands of spatial processors, as is happening currently in the West End and Broadway, and also our TiMax SoundHub audio can be controlled by other, predominantly lighting, control tracking systems, as is happening now on our first of several cruise ship installations.

A major impact TrackerD4 has on spatial mix outcomes is it allows the mix engineer to concentrate on the balance and not the show blocking




and real-time cueing. This also significantly reduces this overhead during rehearsal. The enhanced speed, accuracy and redundancy of TrackerD4 ensures a reliable and repeatable spatial outcome in challenging environments.

**How does the TiMax TrackerD4 address the current price/performance gap in the immersive sound market?**

The TiMax TrackerD4 is 40% cheaper than the original TiMax Tracker system, bringing it more in line with the TiMax SoundHub audio processing price range. It is also around a half to a third of the pricing of the other serious stage tracking product offerings, and both of these factors make it a no-brainer for projects considering live immersive spatialisation.

We have also added PosiStageNet signal interfaces so we can do some lighting and video tracking control, and so TiMax SoundHub can be controlled from external sources such as manual followspots. Lighting control is new to us, but it has been mentioned from when we first introduced TiMax Tracker. We believe at our price points, the ROI arguments for lighting tracking, such as reduced rehearsal time, are quite tempting at all budget and performance levels in the production industry.

**What makes TiMax TrackerD4 ideal for the live touring market?**

TrackerD4 setup is elegantly simple to set up. Measurements from a couple of points on stage create X,Y,Z locations for each sensor, then a tag placed on the stage allows the system to self-calibrate in a couple of minutes. If the sensors go in the same places in the rig every night, self-calibration is quick, with new measurements only needed to accommodate different grid trim heights. Standard CAT5/6 connects to the sensors, which are IP-rated for outdoor use and fitted with Ethercons for durability, and TrackerD4 provides an Ethercon POE switch and distribution hub.

**What has the reception been like?**

TiMax SoundHub became something of a norm in the West End, Broadway, Scandinavia and worldwide, along with TiMax Tracker to automate it, pushing sound reinforcement standards beyond just the fidelity offered by phenomenal loudspeaker systems available today. This led others to join the game, which stimulated the spatial/immersive discussion, and interest has grown rapidly as a result.

TiMax has responded by both upgrading its spatial audio platform with the new HARDCore FPGA dsp, and also the multipurpose, multiplatform TiMax TrackerD4 system, which also addresses the broader market with lower price points. TrackerD4 sales have consequently ramped up to more than double the previous system since its introduction in Spring 2019. Systems are in use on theatre shows on Broadway and the West End, as well as Germany, Australia and Switzerland. New sales have also been made to the USA, China and Japan. TiMax TrackerD4 is here to stay.

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*Photos: Ripple Media*

*www.outboard.co.uk*