

Japan's first Legoland  
boasts the most  
sophisticated  
networked audio



Legoland, Japan  
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## THE CHALLENGE

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## THE PEAVEY SOLUTION

Tejix was retained for the design and installation of all parkwide BGM, audio, video and lighting (both indoors and outside), on-board audio, dynamic signage and even parkwide wi-fi. As an internationally renowned theme park technology design and consultancy firm, Tejix's work features in many of the world's premier

theme parks across the globe. Concerning the sound design for Legoland Japan, Tejix sound designer Akio Takeda emphasised that clarity and simplicity were the top priorities. "We started from a blank page," he explained, "with the idea of providing exceptional performance in a straightforward design. To achieve consistency throughout, we used just seven speaker models across the board – from theaters, dark rides, outdoor areas, and Lego models to shops, restaurants and bars - all from Peavey, and just one amplifier model. Even in areas where different speaker models are used concurrently, the sound is admirably consistent."

The majority of the speakers in questions are from Peavey's Elements Series of highly durable, weather-resistant loudspeakers, now with an IP56 rating. There are over 550 Elements Series speakers throughout the outdoor areas of the park, supplemented by nearly 300 Impulse 6 loudspeakers. The indoor areas are served by 72 Sanctuary Series, 200 PHR 630 ceiling speakers and a Versarray line array system in the main theater.

"The issue with BGM is that it is tempting for sound designers to space the speakers too far apart in an attempt to keep the budget down, which leads to variations in level and coloration that are very noticeable," says Tejix founder and MD, Henry Corrado. "One of the main reasons we opted for a Peavey solution was that we knew we wouldn't have to do that, as the same budget goes much, much further than with so-called "premium" loudspeaker brands. For example, Legoland Malaysia in Jahor has a total of 480 speakers across the park. Here in Nagoya, we've installed nearly 1200! The result is a constant soundfield wherever you are, indoors or outdoors, on a ride or in the street, on the terrace of a restaurant or in the retail zone. No holes, no gaps and no hotspots where you feel the system is screaming at you – just smooth, homogenous sound throughout the park."

The Elements 108C is the principal loudspeaker of choice for the outdoor areas. Constructed from an advanced composite fiberboard material that is dimensionally stable in wet conditions and resists contamination, the cabinet nevertheless has the resonant properties of wood for high quality sonic performance combined with rock-solid reliability. The aluminium grills on the front feature a barrier membrane that repels water yet allows moisture to escape without affecting the sonic performance of the loudspeaker. "The build quality is absolutely fantastic," enthuses Corrado. "They are a true outdoor speaker – rugged, durable, totally weatherproof and they sound very good. I'd definitely use them again."

The Elements 108C is the main outdoor speaker for large spaces and they cover the area very well."

Tejix has supplemented the Elements Series with nearly 300 Impulse 6 lightweight, mini 2-way weather-resistant speakers for smaller streets and under canopies where a more compact, discreet system is required. "Impulse Series speakers do a great job in the smaller areas. They are also weather-resistant so they can be used inside or outside, and they are extremely good value for money."

For all of the indoor attractions, Tejix opted for Peavey's Sanctuary Series - the arrayable SSE 15s and SSE 12s for larger areas requiring maximum coverage and the compact, lightweight SSE 6 for smaller environments where space is at a premium. "For me, the Sanctuary Series is close to greatness!" says Corrado. "I am always amazed that a speaker at this price point can sound so good, but they do – it's amazing! The design is excellent; they are versatile, reliable, easy to install and they sound great, and all at an absolutely unbeatable price point. For my money, they are just so much better at every level than anything produced by competing brands for the same application - Peavey really has done a fantastic job on this range."

The restaurants and retail areas are covered by a total of 200 Peavey Commercial Audio PHR 630 ceiling speakers. "There's nothing to say, really," says Corrado. "The PHR 630s are robust, discreet and sound perfectly good. They do exactly what they were designed to do with no fuss and no frills."

Finally, Tejix installed a Peavey Versarray line array system in the main theatre. "I have to confess that we spent a lot of time on the crossovers to get them to deliver the performance we were looking for, but it was time well spent," says Corrado. "I can honestly say that the sound quality now is really very good indeed, and once again, at a fraction of the price of other comparable line array systems."



## THE RESULT

The installation went well from start to finish despite certain constraints due to Japanese building regulations and working with local crew. "In Japan, you can't just attach a speaker to a wall," explains Corrado. "It has to be attached to the primary structure of the building, which makes life quite tricky!" Custom brackets had to be made locally for every single loudspeaker that needed to be surface mounted.

The other issue was in communicating effectively with the local crew. "When there are 1200 loudspeakers to install, the scope for error is quite considerable. We devised a colour-coding system so that the crew could see at a glance what needed to be installed where. I'm pleased to say that it worked pretty well in the end."

Tejix calibrated the full system using Smaart and digital wireless microphones. "It was a huge job that took several weeks," recalls Corrado. "However, being on a single network helped enormously as it gave us an overview of the complete system before we even started to EQ it. We were able to configure all of the settings over Wi-Fi, which was also a great time-saver." In conclusion, Corrado is pleased at the way the project has turned out. "The Peavey sound design with a digital backbone has worked very well," he confirms. "It enabled us to supply enough loudspeakers to cover every zone comfortably with headroom to spare and we know it'll be extremely reliable. The single network has enabled us to manage the 500+ audio channels efficiently, thus achieving our goal of combining the simplicity of a centralized system with the flexibility of a distributed approach. The client is delighted because it sounds great throughout the park and has achieved all of his price goals. I'm sure this is a design concept we'll be returning to for future projects."

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## LEGOLAND, JAPAN

### ELEMENTS SERIES

550 pcs  
Elements 108C x 220  
Elements 212C Sub x 20

### IMPULSE SERIES

Impulse 6 x 290

### SANCTUARY SERIES

SSE 15 x 16  
SSE 12 x 16  
SSE 6 x 40

### CEILING SPEAKERS

PHR 630 x 200

### LINE ARRAY

Versarray 112 x 12



[www.peaveycommercialaudio.com](http://www.peaveycommercialaudio.com)