

“... THE NEXT TRAIN ON PLATFORM 1 GOES TO BONDI JUNCTION”

*Dante Network as a Loudspeaker Feed
for Sydney’s Railway Platforms*

Is this the right train for the airport? Do I need to go to a different platform? If travellers cannot hear the platform announcements it makes them nervous. This is no longer a problem in Sydney, where NAMs and **oratis** are combined with Dante for increased efficiency – and for optimum speech intelligibility

New South Wales, the most populous state in Australia, has big plans. It wants to be more modern and attractive. An important cornerstone of the 10-year plan is complete renovation of the technical infrastructure. This also explains why Sydney Trains, as the operator of all railway services in New South Wales, is breaking new ground by equipping its platforms with new announcement technology. The technical redesign is just one part of the state government’s ambitious project.

Developed by Sydney Trains, the pioneering concept dispenses with traditional 100 V line loudspeakers. Instead, Dante networks carry the spoken announcements digitally to the speakers.

To the right destination

In the real world it works like this: Each railway station has one fully summing DELEC **communication platform**, familiar from standard

intercom applications in TV production or in theatre stage management paging systems. This unit, which may be an oratis Matrix Frame or an oratis compact Communication Centre, acts as an audio router in a Dante network and is fed with the pre-recorded announcements. The station staff also have access to **oratis** subscriber units which enable them to speak directly into the announcement system.

On the output side, the announcements from the **oratis** system go via the Dante network connected to all the platforms where there are clusters of two or four loudspeakers. Each of these groups of speakers is equipped with a NAM, the DELEC Network Amplifier Module, as an audio interface to the Dante network, which decodes the Dante signals. Each of the resulting channels connects to one of the four amplifier outputs which feeds a passive PA speaker. The result is a lean technical solution with very low wiring and hardware overhead.

STAGES Info

NAM: Listen in to Dante networks directly

Under the name NAM, the acronym for Network Amplifier Module, DELEC offers a compact Dante™ decoder for Dante networks with integrated power amplification. NAM is a small device that is typically installed in the vicinity of the monitoring position where it makes it simple to monitor audio signals from Dante networks.

NAM is available in several different variants. In its standard version, it has a Dante interface which can retrieve and decode four signals from the network. The four analogue line outputs are equipped with power amplifiers capable of delivering 12 watts average power. This means that the audio decoded from the Dante stream can be sent directly to passive speakers. With this functionality NAM is an ideal monitoring tool for many applications.





In general, the installation at each railway station is divided into announcement zones. Typically, a zone includes all the speakers on one platform so that announcements can be targeted precisely at one area. Zone addressing is achieved by assigning an individual Dante channel to each area. The NAMs are capable of addressing any of the many Dante channels on the network – many more than enough for this application.

No two stations are the same

The stations can be small suburban stops or large junction stations. They differ considerably in both the number of platforms and their length. There are corresponding differences in the announcement networks which range from just two up to a total of 32 NAMs. Circular Quay, at the northern edge of the Sydney central business district on Sydney Cove in Sydney Harbour, is a good example of one of the largest installations. Every Sydney tourist knows this station as a stop on route to the famous Sydney Opera House and the ferries. At the end of 2013 Circular Quay had already been transformed. Two very long platforms were equipped with 10 NAMs each, to which was added a further 12 NAMs installed in the concourse area.

The NAM variant used by Sydney Trains is fitted with a microphone input. In some stations – and Circular Quay is one of them – it is used to analyse the ambient noise around the PA speaker and to control automatic volume control. In some other stations the microphone signal is also used for an echo cancellation function. The PA system in the large concourse area was calibrated by a professional acoustician. The signal processing required to compensate for the acoustics is undertaken by the NAM's 1000 point FIRs and precision time delays.

With its interference free digital technology the new announcement system guarantees excellent audio quality with a high degree of speech intelligibility down on the platforms. The NAMs monitor each and every loudspeaker during operation in order to detect any driver failures, shorts or similar speaker errors immediately. Thanks

to the Ethernet networking of all components the results of the speaker checks can be forwarded from the NAMs to the Sydney Trains central monitoring and control system where they are evaluated by the technical support team.

A Powerful Combination

Implementation of the technical measures of the 10-year plan has been in full swing since 2013. In the first step of this multi-stage reconstruction approach 30 stations have already been equipped with a new loudspeaker network. At least another 20 stations will follow in 2014. The contract includes the design, supply, installation and commissioning of the public address components and was an important driver of Dante development both for DELEC systems in Australia as well as at the German headquarters.

“Our design scored with the most innovative and scalable solution based on Dante.” explained Treva Head, Regional Manager at STAGETEC Mediagroup Australia. “The flexibility of the *oratis* system combined with NAM as the Dante interface module provides a very straightforward system architecture.”

About the Author

Bettina Guter is in charge of national and international sales at DELEC. She supported the installation and commissioning phase of the new PA networks in the first 30 Sydney Trains stations on-site.

