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## Digital Fallback Increases Availability and Cost-Efficiency of Audio Communication Systems

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“Dear passengers, welcome aboard the intercity train to Ghent and Antwerp Central Station. The next stop is Waregem.”

On-board communication means reliable audio broadcasts. In this respect, the architecture of the on-board audio communication system must be carefully considered. To ensure high functional reliability, a fallback method is no luxury.

### Televic GSP’s Train Audio Communication System (TRACS) and the Importance of Its Innovative Digital Fallback

Our audio platform for railway applications – TRACS – is a complete audio solution consisting of modular and configurable base

components or devices. The TRACS product line stands for high-quality audio and functional reliability. On top of that, its configurability, modularity and security ensure we can provide our customers with a state-of-the-art and flexible future-proof platform.

The TRACS functionalities enable many different on-board communication expressions. These vary from crew to passenger messages, playback of pre-recorded

*“This digital fallback mode enables an unprecedented level of availability of audio functionality.”*

messages, to warning tones and music broadcasts via the public address system. The intercom functions ensure crystal-clear communication between crew members and between passengers and the train crew.

### Some of the advantages of TRACS:

- **Superior audio quality** with state-of-the-art audio algorithms, low latency, high intelligibility even at severe ambient circumstances
- **High reliability:** functional reliability increased by architecture choice using same base components, both analogue and digital fallback support
- **Low risk & upgradable:** thanks to the modular approach and up-to-date software stack
- **Secure maintenance interfaces**
- **Configurable:** customisation via parameterisation of ‘proven design’ software: zoning, audio settings, priorities, functional behaviour of IO, etc.
- **Designed to optimise the total cost of ownership (TCO):** in order to be efficient during the full product lifecycle, it’s easy to integrate, commission, install and maintain, different architectures for different needs with plug and play operation and long term support

## Analogue or Digital Fallback?

In the past, audio system providers implemented the communication between the different audio devices via analogue (UIC568-based) train lines. This communication method is still used today, but mostly as an analogue fallback method when the main communication via the Ethernet backbone is failing. Although UIC568 has been used for a long time, it has a number of shortcomings to support up-to-date audio fallback functionalities.

## More Is Possible with Digital

Due to the functional restrictions of analogue fallback – the lack of passenger emergency communication for instance – we have invested in a **fallback method with extra possibilities**. The method is based on standard technology already used in railway applications: daisy-chained Ethernet in combination with Power over Ethernet (PoE). By using a digital link, we eliminate the restrictions of the analogue fallback with support for multiple audio streams and a digital communication channel among others. Another advantage of digital fallback is the identical functional behaviour compared to ‘normal mode’ operation. Passengers and crew should not be aware whether the function is executed in normal or fallback mode.

## More Reliability and Less Maintenance

Our digital fallback network works

completely independently from the main Ethernet backbone. Besides that, diagnostics of this back-up network are never intrusive, which means that they can be performed continuously behind the scenes when the public transport vehicle is in operational service. The digital fallback method with monitoring functionality won’t leave any dormant failures behind.

Furthermore, TRACS is designed to optimise TCO by leveraging plug and play operation, a configuration toolset for commissioning, advanced diagnostics and troubleshooting. This implies lower maintenance and a higher cost-efficiency in the long run.

## Leveraging Digital Fallback to Implement Cost-Efficient Audio System Topologies

Instead of increasing the functional reliability of the system, we also offer our customers the possibility to leverage the digital fallback network as an alternative to locally interconnecting the TRACS devices. By largely reducing the number of required (PoE) Ethernet switch ports, the total system installation cost is optimised. Since the same base components or devices are used, our customers are assured of the same level of audio quality and ‘proven design’ as for the standard topology.

**To find out more, contact us:**

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Televic GSP is dedicated to provide innovative and reliable:

- › Passenger Information Systems
- › Condition Based Maintenance solutions
- › Services & Lifecycle support

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**We are looking forward to meeting you at InnoTrans 2022!**

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