DAMM Cellular Systems

Communications: Critical to Keeping the Rail Network Moving

Climate change commitments by the global transport sector are driving initiatives to increase passenger occupancy on the rail network, while simultaneously growing the freight rail business.

This focus on providing relief to road and other transport systems comes with an increased pressure on keeping the rail network running smoothly, efficiently and safely with very little downtime.

Access to real-time operational information is at the heart of delivering on this promise. It is critical to know what happens, and where, throughout the network: from tracking trains on route, to locating and addressing issues along the track, to keeping operators updated with safety information. Therefore, a resilient and reliable communications infrastructure is needed to help keep the rail industry moving.

But how do you find a system that will be up and running quickly and easily, within budget and with minimum disruption to operations? Together with its network of specialist system partners, DAMM Cellular Systems has cooperated successfully with a series of worldwide rail and metro operations to deliver high-performance voice and digital communications that do just that.

Optimised for Rail

Due to their inherent design, DAMM's base stations are optimised for installation within the rail sector and are already helping many organisations enjoy the benefits of increased control, efficiency and safety throughout their networks.

Reliable

To support quick decision-making and ensure train efficiency, safety and on-time performance, the base stations are designed to guarantee availability of real-time operational voice and data traffic. The fully redundant system offers channel access even in case of a failure situation.

Further resilience is provided by the intelligent decentralised network architecture, which means no single point of failure. This is vital, especially if the network is interfaced with your public announcement and passenger information systems and the train's computer. It will not let you down in day-to-day operations. And it will not fail in cases of emergency!

The technology also supports high-quality clear voice audio, which filters out high cabin and ambient noise suffered in rail environments and maximises clarity during transmission.

Environmentally Stable

The rugged design of the IP65-protected outdoor base station, ensures it keeps on working even in extreme environments. The robust nature of the products means they can withstand fluctuations in power supply, extreme temperatures, high shock and vibration levels and electromagnetic interference.

Their compact design also makes them ideal for installation in narrow tunnels, directly on buildings or on masts alongside the railway or in stations, reducing feeder loss and installation costs considerably.

Easy to Deploy and Maintain

Its plug-and-play design delivers simplicity for easy setup and fast deployment.

Both the indoor and outdoor base stations offer extremely low power consumption, and thanks to the IP65 encapsulation, the outdoor base station doesn't need any external air-conditioned housing. DAMM products are developed with flexibility and user-friendliness at the core, saving substantially on training and project costs.

Furthermore, redundancy means that maintenance can be done without shutting down operations, ensuring an efficient railway operation and avoiding costly down time.

Interoperability

In the event of an emergency, it is critical that the radio systems can communicate with each other. DAMM technology enables the emergency services to be easily and dynamically configured and placed into new talk groups with the railway operator to facilitate communications in order to co-ordinate rescue works, crowd control, etc.

Products in the DAMM MultiTech product portfolio are built on a multi-technology core-connected system featuring multiple carriers as well as frequency sharing in one box within either UHF or VHF frequency ranges. This solution ensures easy expansion of existing networks and interoperability between different PMR technologies. The open API enables easy integration to telcos and DAMM infrastructure can seamlessly be combined with either the railway operators' own products or products from DAMM's wide range of partners.

Spectrum Efficient

DAMM base stations are extremely frequency efficient, with the trunked infrastructure ensuring that radio channels are allocated on demand to individual users.

With the frequency sharing functionality, you can reuse frequency pairs along a railway track or in a tunnel. You normally need around five frequency pairs to cover a railway track. With the frequency sharing functionality, you only need two, making huge savings on frequency licences. In tunnels, using a series of BS422 base stations instead of repeaters will also eliminate the need for expensive optical fibres. At the same time, you will get a redundant and fully IP-connected unified network. This means you only need one management system and spare parts for one type of hardware.

Future-Proof

Designed for seamless integration and scaling of networks the DAMM solution unites TETRA, DMR and analogue into one powerful platform that allows you to think big, start small and scale fast. Its flat decentralised IP architecture and intuitive software enable effortless, self-configuring site expansion.

Compatible with both existing and new systems, you can add or integrate all network components, including base stations, dispatchers, network management facilities and external gateways at any time, even while the system is in operation.

Conclusion

Whether your network is large or small, and whether you operate underground or in densely populated areas or harsh, remote rural areas, DAMM has the expertise and know-how to help you ensure the sustainable safety and efficiency of your rail application.

To learn more about our cost-efficient products and solutions and how we can help you, please contact sales@damm.uk.

DAMM
Critical communication made easy