Frauscher

Merseyrail Expansion: Modernising Railway Connectivity With Advanced Data Transmission

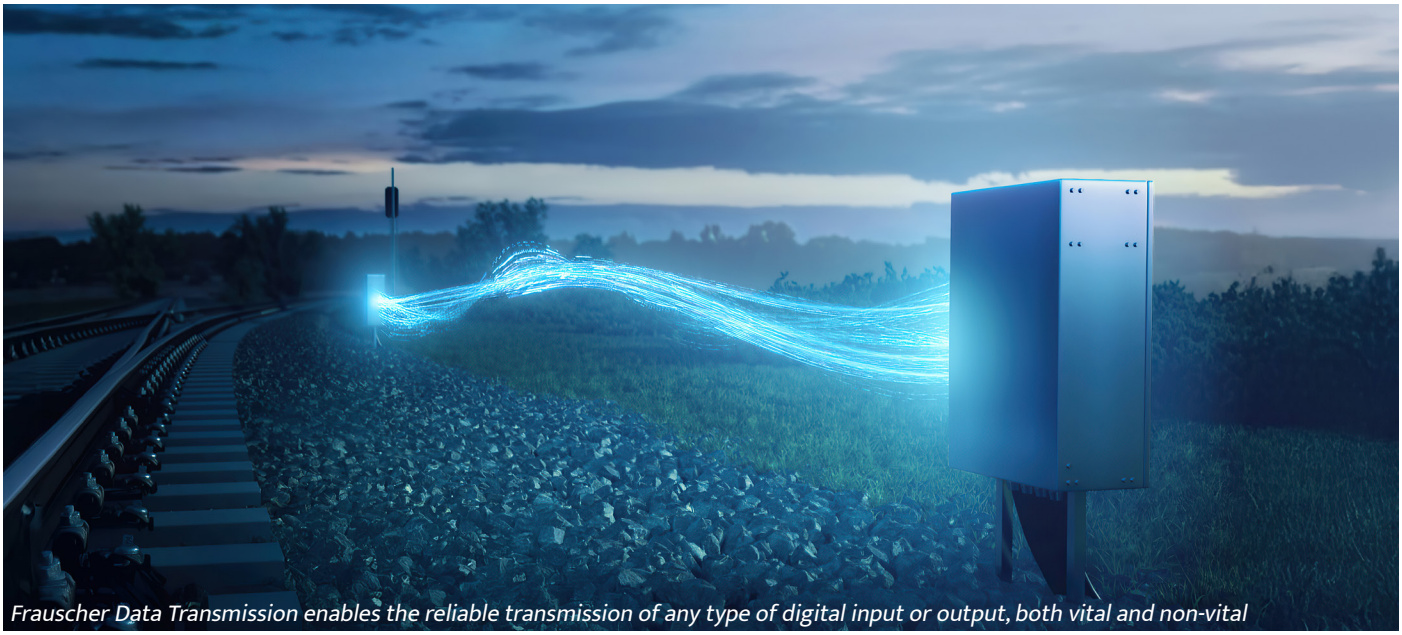
As part of Merseyrail's ambitious network expansion, services have been extended from Kirkby Station to the newly established Headbolt Lane Station.

This project, headed by the company Trackwork, marks a major step forward in enhancing local transport, shifting the terminus for Northern services from Kirkby to Headbolt Lane. With this change, Kirkby Station transforms from an interchange to a through station for Merseyrail trains, improving connectivity and strengthening the integration of the region's transport network.

An important requirement of the project was the safe and reliable transmission of multiple bits of vital information pertaining to railway operations. This includes Train Protection & Warning System (TPWS) signals, track circuit interrupter status, and arrival as well as departure data. In total, the information was transmitted over a 7km distance between Headbolt Lane and Rainford. For the project team, the expectations were clear: to implement a solution that would meet stringent safety standards, streamline installation and keep the tight project timeline on track – all while minimising disruption to daily railway services.

Vital Data Transmission as a Part of Tomorrow's Railway Networks

In the context of railway modernisation, data transmission solutions like the one sought in this project are becoming increasingly important.



Frauscher Data Transmission enables the reliable transmission of any type of digital input or output, both vital and non-vital

William Liddall, the Frauscher UK Engineering Manager, further elaborates on this point: *"Rail networks are constantly evolving and expanding. With this comes the need to send both vital and non-vital data between different locations. Previously this has been done by systems relying on copper conductors. Data transmission with FAdC® uses Ethernet networks allowing the transfer of a higher density of data and utilisation of the existing infrastructure."*

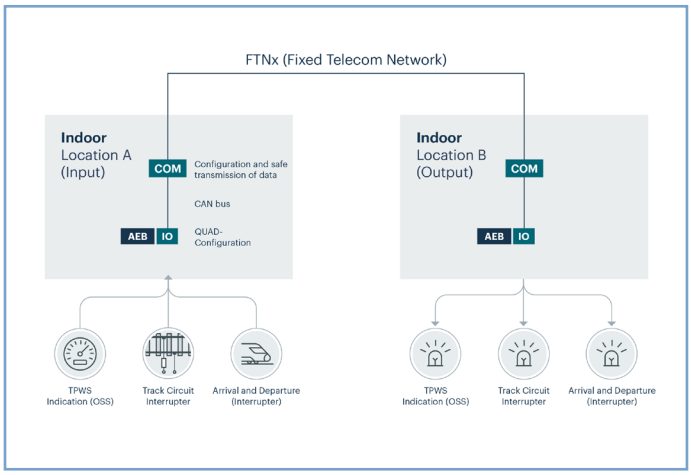
Initial plans considered the conventional approach of laying 7km of new troughing and cables – a process that would have involved extensive access planning, significant civil works and a high risk of delays, especially given the already tight timeframe. Additionally, the safe transmission of multiple indications added complexity, requiring a solution that could handle data securely and in compliance with SIL 4 safety standards.

Delivering Safe, Efficient and Cost-Effective Railway Expansion through Modern Data Transmission Solutions

Frauscher proposed its Data Transmission System as the perfect fit to address these challenges. The solution eliminated the need for new cables by leveraging the existing FTNx telecoms network, thus avoiding disruptive and time-consuming installation works. By shifting much of the work off-site, the solution from Frauscher helped reduce the amount of on-site activity, simplifying project management and ensuring the project was delivered on time and within budget.

The Frauscher system delivered on every technical front. Configured in QUAD safety mode, it provided SIL 4 data transmission by reading each indication through four separate optocoupler isolated inputs – ensuring the reliable transmission of the vital data. This setup thus guaranteed the safe transfer of indications such as Track Circuit Interrupter status and TPWS signals. Furthermore, with the integration of the Frauscher Diagnostic System (FDS), the project team gained access to indication statuses and historical data, enabling faster troubleshooting and enhanced operational oversight.

By eliminating the need for extensive cabling and utilising existing communication networks, data



Project layout showing Frauscher solutions

transmission solutions can significantly accelerate project timelines. Additionally, by avoiding costly on-site installations and using the same network which in turn reduces complexity, these solutions offer substantial cost savings over the long-term.

Frauscher's understanding of railway project requirements ensured that every project stage – from planning to implementation – was supported with tailored support, providing Merseyrail with confidence and clarity throughout the process. With a proven track record and trusted reputation, Frauscher's system offered the reliability the customer needed, enabling them to move forward with a solution that was not only safe and efficient but also ready to meet the demands of future railway operations. This goes in line with Frauscher's core aim: to provide a trusted foundation operators can run their rail network on with confidence.

The Merseyrail project stands as a strong example of how advanced data transmission and other modernisations are driving a more efficient and cost effective railway. As more projects recognise the importance of flexible, efficient and safety-critical data communication, Frauscher continues to provide systems that help operators achieve their goals – supporting smooth project delivery while enhancing connectivity and operational performance.

For more information visit **www.frauscher.com**.

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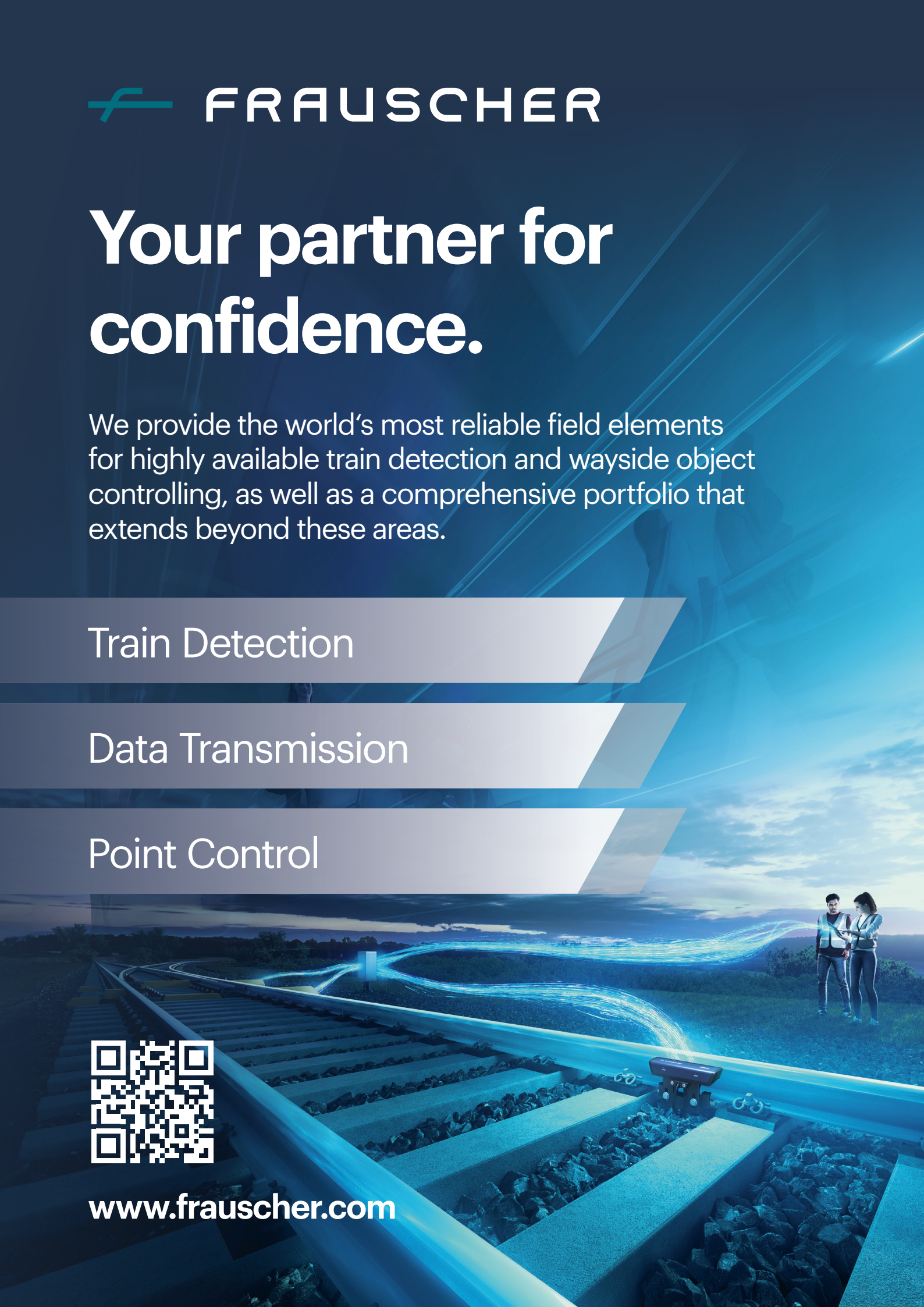
Your partner for confidence.

We provide the world's most reliable field elements for highly available train detection and wayside object controlling, as well as a comprehensive portfolio that extends beyond these areas.

Train Detection

Data Transmission

Point Control



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