Case Study | UK

Churnet Valley Heritage Railway

Project details

Nestled in the charming landscapes of Staffordshire, the Churnet Valley Heritage Railway offers a nostalgic steam train ride through time, embracing the rich railway history of the Moorlands. At the heart of this historical journey lies a passionate team of volunteers. Their unwavering commitment fuels the preservation and operation of this heritage railway.

As Churnet Valley embarked on a journey of expansion, a need arose to explore modern, efficient solutions for their upcoming project at Leekbrook junction and Cheddleton. The Churnet Valley Heritage volunteers approached the Frauscher UK & Ireland team for solutions that would meet their operational need for train detection.

Another important requirement was seamless integration data to their Programmable Logic Controller (PLC) from the new axle counting system, in this case the Frauscher Advanced Counter FAdC®. Furthermore, the latter needed to be integrated into their own signalling infrastructure.

Frauscher RSR123 & FAdC® : A Perfect Fit

For this, they needed comprehensive support and a deeper understanding that would allow them to fully utilise the FAdC® within the larger system.
In this instance, Frauscher Wheel Sensors RSR123 were used in conjunction with the FAdC® due to its overall robustness, low maintenance costs, and convenient installation thanks to a patented Frauscher Rail Claw which eradicated the need for any drilling during the installation process.
Five RSR123 wheel sensors were strategically located at the base of the station platform and the shunting yard exit. Their core function consists of detecting the traversing of train wheels at the two track sections at Cheddleton. For this project, FAdC® utilises a relay interface, simplifying the axle counting process and ensuring accurate and effective rail management.
Some of the significant benefits of using Frauscher wheel sensors is their highest availability, easy operation, and low maintenance needs. Our flexible space-saving indoor equipment houses innovative electronics boards, that are easy to integrate with existing signalling systems; this is due to their simple, modular design.

Furthermore, throughout the project, Frauscher UK & Ireland offered comprehensive support, with engineers providing on-site assistance during set-up and follow-up communication post-commissioning. This dedication to customer satisfaction underscores our commitment to excellence, providing clients with reliable, efficient, and user-friendly solutions for their project needs.
Furthermore, Frauscher accommodated last minute requests for multiple track section outputs, utilising the modularity, scalability and flexibility of FAdC® to meet all signal inputs needed for Churnet Valley's PLC system efficiently.

Challenges & Solution

As team Frauscher began working on this project, we faced unique challenges. However, no matter how demanding the situation may be, team Frauscher has proven to operate with innovative solutions, under all conditions. Here's how our team of engineers powered through the challenges.

Railbeds were buried in the ground, the team had to opt for a coordinated manual approach to digging holes and installing wheel sensors, preserving the historical integrity of the railway.
Churnet Valley Railway, a not-for-profit organisation, had a shortage of certified engineers to aid in the installation process. Our team collaborated with their passionate group of volunteers, fostering a deeper understanding which made the installation seamless.
Incorporating modern technology with the existing PLC presented a technical challenge. Despite only two track sections in this case, train enthusiasts from Churnet Valley requested multiple secure outputs from FAdC® to integrate with the current PLC system. The integration of Frauscher systems with the existing PLC was achieved through customised programming, ensuring seamless communication and functionality.

Weathered over time, this historical rail required special attention. Our team took significant care to remove the rust from the rails to guarantee optimal performance and safety.

Installation of the Frauscher Wheel Sensors RSR123 was made convenient thanks to our patented Frauscher Rail Claws, which reduced engineers' dwell time on site, increasing safety and convenience.
To combat weather challenges, a marque was installed to protect sensitive equipment from rain during installation, safeguarding against potential damage.

Client testimonial

"The Frauscher team designed a system configuration for the crossover exiting our yard at Cheddleton (which consists of two track sections). They attended site to install and commission the system, which we connected to our monitoring PLC so that we could test how the interface to our signalling system would work. The installation engineers were very friendly, efficient and helpful. They explained the system to us in detail and made sure that we understood how to use it. This included how to interrogate the historical logs and understand any diagnostic information on the indoor equipment display...

...We have been very pleased with the Frauscher equipment and the service that their team provide. We look forward to continuing to work with them in the future"

David Bailey | Signalling Volunteers
Churnet Valley Railway (1992) PLC

Key Facts

Operator	Churnet Valley Railway (1992) PLC	**Country**	United Kingdom
Partner	Frauscher UK & Ireland	**Segment**	Heritage Railway
Scope of supply	Frauscher Advanced Counter FAdC® with Wheel Sensors RSR123	**Application**	Axle Counting
Scope of project	Re-signalling to depot area	**Project start**	November 2023
Axle Counter	Frauscher Advanced Counter FAdC®	**Wheel Sensor**	RSR123

Frauscher UK Ltd. | Abbey House | 282 Farnborough Roard | Farnborough | Hampshire GU14 7NA | UNITED KINGDOM
+441276 534700 | uk.office@frauscher.com | www.frauscher.com