



Case Study | Russia

Karelsky Okatish – Station Kombinatetskaya

Challenges

The Station Kombinatetskaya is located in the Murmansk region, North West Russia. The environmental conditions in this region was one of the major challenges and urged for strong outdoor equipment that can operate highly reliable and precise when exposed the extreme cold weather, such as snow. Minimum maintenance requirements became another major criteria.

Solution

After a successful trial with the Frauscher Axle Counter Solution based on the Wheel Sensor RSR180 and the Frauscher Advanced Counter FAdCi, the customer decided to replace Track Circuits with

Axle Counters in their Railway Network. Modern axle counters are replacing more and more track circuit installations worldwide, as it is a key solution for future-orientated and sustainable rail systems. At Kombinatetskaya Station, a central architecture was established, where all indoor components of the axle counters are installed in one location.

The RSR180 combines tried and tested technology with decades-long experience. As the first wheel sensor in our portfolio, it has undergone continual development over more than 30 years. It is resistant to disturbances caused by magnetic rail brakes and can also be used in grooved rails. The combination of Frauscher Wheel Sensors RSR180 with the Frauscher Advanced Counter FAdCi provided an optimum solution in the customers' setting.

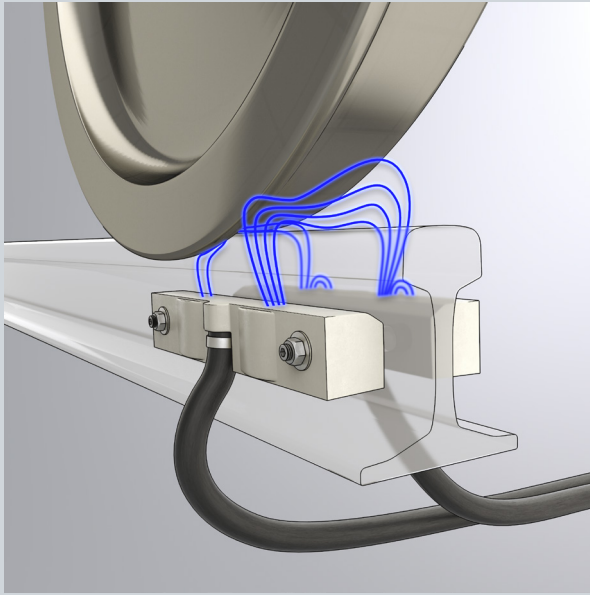


Figure 1: Frauscher wheel sensors are mounted on the inside of the track and contain two sensor systems in one housing, which results in many cost advantages compared to more conventional designs.

Figure 1 illustrates that this technology allows avoiding the installation of electronics directly on the near track, e.g. in the trackside connection box.

The proposed replacement work involved the replacement of existing detection points with Wheel Sensors RSR180 shown below in figure 2: Track Layout.

The FAdCi system was designed for industrial lines as well as for regional and metro lines. It is a SIL3 safety solution that is limited to train speeds of 80 km/h.

Reliability and running costs are closely related and essential factors in the operation of an infrastructure network. Maintenance-intensive components are rated as major cost drivers, as is high power consumption, therefore, minimising life-cycle cost through preventive maintenance was the solution to support the customers challenges. The Frauscher system requires a single maintenance visit every 2 years. This will only be necessary for areas where train movement is not expected within these two years, as standard train movements will confirm correct operation.

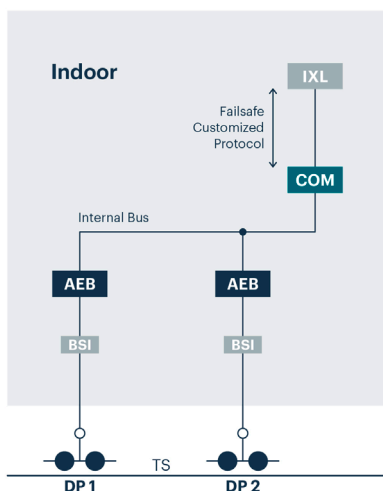


Figure 2: Track Layout

Universally applicable hardware interfaces and high-performance software interfaces enable the fast integration of our axle counters in various applications. Connection to a high-performance electronic interlocking is possible either via a vital customer-specific interface or the Frauscher Safe Ethernet FSE protocol. All processes – from planning, engineering and configuration, to diagnostics, maintenance and adaptation – are supported by innovative software tools. The customer decided to use the Frauscher Advanced Counter FAdCi in combination with the Frauscher Safe Ethernet FSE protocol.



The FAdCi interfaces in the Kombinatskaya Station infrastructure.

The FAdCi option offers a cost-effective solution to projects with SIL3 safety requirements and lower speed lines.

The Frauscher Wheel Sensor RSR180 is a time-proven technology, universally applicable, various possibilities of application, a modular structure and flexible design with minimal maintenance.

In summary, it can be assumed that axle counters offer higher availability, better cost-effectiveness and minimum maintenance in challenging locations.



The on-site-installation of the RSR180 is shown on this picture.

Key Facts

Operator	Karelsky Okatish	Country	Russia
Partner	Promzheldoravtomatika	Application	Axle Counting
Scope of Supply	FAdCi R2, 33 x Wheel Sensor RSR180	Project start	February 2020 – End December 2020
Scope of project	Facilitating indoor and outdoor equipment		