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Aargau Verkehr AG (AVA) | CH

Making public transport operations easier

/ TRAIN DETECTION SYSTEM
/ FRAUSCHER INSIGHTS

Operating a high-density tram network in Dietikon, Aargau Verkehr AG (AVA) needed a structured way to monitor their train detection system's performance in a challenging environment. Frauscher Insights Diagnostics empowered Aargau Verkehr's operations and maintenance teams to distinguish genuine faults from environmental influences – turning efficient troubleshooting into a core part of the daily maintenance routine.

Background

Aargau Verkehr operates its tram network through Dietikon, a high-density urban region shaped by heavy pedestrian traffic and a demanding track topography. For track vacancy detection, the operator relies on the Frauscher Advanced Counter FAdC® together with Frauscher Wheel Sensor RSR180. The trams running on the line are equipped with low hanging magnetic track brakes, which can be detected by the wheel sensors. To compensate, Frauscher implemented a dedicated algorithm, that allows the system to differentiate between tram wheels and magnetic track brakes, preventing faults in track vacancy and occupancy reporting caused by the braking technology. Rail required Competency Level 3 certification before.

Operator	Aargau Verkehr AG (AVA)
Country	Switzerland
Segment	Urban / Tram
Application	Track vacancy detection, Frauscher Insights Diagnostics
Project start	Train Detection System: 2021 Frauscher Insights Diagnostics: 2023
Scope of Service	Delivery of Train Detection System and installation of Frauscher Insights Diagnostics
Products	FAdC®, RSR180, Frauscher Insights Diagnostics

Challenges

The working principle of the Frauscher Wheel Sensor RSR180 ensures reliable detection in any environment. Along a busy urban line, such as Dietikon, this environment is characterised by unavoidable factors. In areas with high pedestrian traffic, objects such as discarded cans occasionally land on the track. When one comes to rest on a sensor, it is dampened without a train present, and the section is reported as occupied. On operational side, the sensor layout and positioning play a role. At several locations, permanent occupancies from train wheels and partial traversing occur regularly and must be interpreted correctly by the FAdC to provide a warning to the operator, who can then proceed according to his operational processes. In total, factors like these and more urge for a structured approach to manage and prioritise resulting occupied states effectively.

Solution

To give Aargau Verkehr full visibility into these notifications and their underlying causes, Frauscher implemented Insights Diagnostics. In addition, this solution provides the team with a full overview on their wheel sensor's health status.

/ Frauscher Insights Diagnostics

The tool provides the overall system status on a dashboard and also specific views for elements like track sections and detection points showing historical events and details like the sensor current curve. From this, Aargau Verkehr's team can constantly monitor the system's status. Before acting, the team can identify whether a notification is caused by current drift, permanent occupancy, a partial traversing, or another influence. Countermeasures, such as calibrating a sensor, can then be planned precisely, without unnecessary site visits.

/ Foundation for Predictive Maintenance

Because Frauscher Insights Diagnostics continuously monitors the condition of the system and all connected wheel sensors, it supports more than immediate troubleshooting. Sensor status can be monitored constantly, allowing for efficient planning of maintenance activities. Thereby, Frauscher Insights also gives Aargau Verkehr the basis for a predictive maintenance strategy, built on the ongoing condition of the network rather than on reactive fault response alone.

/ Closing

The Aargau Verkehr Dietikon project shows how Frauscher Insights Diagnostics turns yet available FAdC® diagnostic data into actionable maintenance intelligence – helping operators run demanding urban tram networks with confidence, even under challenging environmental conditions.



Benefits

Frauscher Insights Diagnostics has become a core part of Aargau Verkehr's daily maintenance routine, helping the team plan and priorities its work each day based on dashboard analysis rather than ad-hoc response.



Time savings

The Diagnostic Interface that comes with Frauscher Insights provides the team with clear information that can be processed without time-consuming interpretation processes before deciding whether a site visit is required.



Operational excellence

Based on clear information from the dashboard, AVA's maintenance decisions are rooted in evidence from the system.



Remote diagnostics capability

The Frauscher Insights Diagnostics dashboard lets the Aargau Verkehr team check the status of all wheel sensors across the network at any time, regardless of location. This makes it possible to assess whether a message actually calls for an on-site intervention before any action is taken.



GET IN TOUCH!

Do you have any questions about our solutions? Click on the link below to get in touch with a qualified contact person.
www.frauscher.com/en/contact



Further references are available via the following link: www.frauscher.com/en/references

