FRAUSCHER
A Wabtec Company

Your partner for confidence.



Aargau Verkehr AG (AVA) | CH

Making public transport operations easier

/ TRAIN DETECTION SYSTEM
/ FRAUSCHER INSIGHTS

Operating a high-density tram network in Dietikon, Switzerland, Aargau Verkehr AG (AVA) needed a structured way to monitor their train detection system's performance in a challenging environment. Frauscher Insights Diagnostics gave Aargau Verkehr's operations and maintenance teams the ability to distinguish actual 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 utilizes the Frauscher Advanced Counter FAdC and Frauscher Wheel Sensors RSR180. Early on, a potential issue was identified, as the trams running on this line are equipped with low hanging magnetic track brakes. Since the metal can be detected by the wheel sensors, Frauscher implemented a dedicated algorithm that allows the system to differentiate between tram wheels and magnetic track brakes, preventing track vacancy and occupancy errors caused by the metallic brakes.

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. A busy urban line such as Dietikon faces high pedestrian traffic that often results in objects such as discarded cans or other metallic debris occasionally landing on the track. When one of these objects comes in contact with a sensor, it's current is dampened without a train present and the section is reported as occupied. On the operational side, sensor layout and positioning are important. At several locations, permanent occupancies from train wheels and partial traversing occur regularly, and must be interpreted correctly by the FAdC. The FAdC provides an alert to the operator when these issues occur, so personnel can then proceed according to their operational processes. Factors like these warrant a structured approach to manage and prioritize erronoeous occupied states effectively.

Solution

To give Aargau Verkehr full visibility into these notifications and their underlying causes, Frauscher implemented Insights Diagnostics. This solution provides the team with a comprehensive overview of wheel sensor health status.

/ Frauscher Insights Diagnostics

This tool provides overall system status on a dashboard, including specific views for elements like track sections and detection points, historical events, and details such as sensor current curve. This information allows Aargau Verkehr's team to constantly monitor the system's status. Before taking action 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, avoiding 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. Frauscher Insights 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 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 prioritize its work each day based on dashboard analysis rather than ad-hoc response.

Time savings

The Diagnostic Interface that comes with Frauscher Insights provides precise information that can be processed without the need for interpretation before deciding whether a site visit is required.

Operational excellence

Based on clear information from the dashboard, AVA's maintenance decisions are rooted in feedback 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 an on-site intervention is required before any action is taken.

Subject to technical alterations, errors, misprint and typographical failures | © Frauscher Sensor Technology | 2026-11 | EN

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

Frauscher Sensortechnik GmbH | Gewerbestraße 1 | 4774 St. Marienkirchen | AUSTRIA | +43 77112920-0 | office@frauscher.com | www.frauscher.com