



Application Solution

Improve Availability and Reduce Maintenance by Upgrading Problematic Track Sections

Axle counters are the most widely used train detection technology globally, and over the past few years utilization in North America has steadily grown. There are many reasons for the region's increasing acceptance and usage of axle counters, but the focus here will be on the flexibility of some axle counting systems to provide "spot fixes" of problematic track circuits. With the simple overlay of one or several track circuits experiencing availability issues or requiring frequent maintenance with a few wheel sensors, an immediate improvement in availability and reduction in maintenance events can be achieved.

Drawbacks of current systems

- High maintenance time and costs to keep older track circuits operational
- More track time required for maintenance and repairs reduces worker safety
- Areas subject to frequent flooding or other conditions that cause track circuit downtime
- Sections of a line where train overspeed or signal overruns are of concern
- Track sections that frequently experience availability issues due to electromagnetic interference (EMI)
- Compatibility issues make it difficult or impossible to replace an old track circuit with a newer version
- Frequent system bottlenecks in certain sections of track due to limitations of track circuit operation, such as loss of shunt allowances
- Areas where compatible frequencies are not available for additional audio frequency track circuits

Improvements needed

- Alternate technology that can seamlessly integrate with an existing system, as an overlay or to replace individual faulty circuits to increase availability
- A technology unaffected by flooding, snow, ice, rusty rails or electromagnetic interference
- The ability to provide operators with the option of quickly and efficiently addressing "hot spots" while retaining the existing system, and without incurring downtime
- A train detection technology that can also provide advanced information regarding train movement to address overspeed and signal overrun concerns
- Significant reduction in maintenance requirements to reduce time on track and improve worker safety
- Long cable runs without the need for step-up/step-down transformers or additional equipment cases along the right of way
- Train detection that does not require bonds or insulated joints to accommodate additional frequencies required with AF track circuits

Solution

Frauscher axle counters can be utilized as a vital and fail-safe “quick fix” to the issues that result from problematic track circuits. Unique qualities include overall flexible architecture and the ability to seamlessly integrate with existing systems. Axle counters do not require alteration or drilling of rail and can work in tandem with a track circuit system, allowing for problem areas to be successfully addressed without disrupting operations.

Transit environments

Modern transit systems often utilize various types of track circuits for train detection. If there is single faulty track circuit, or several of them, there may be frequent instances where the availability of the system is compromised. Frauscher axle counters can replace or overlay one or many faulty circuits, integrating with the existing system using flexible relay and Ethernet interfaces. When fixing these “hot spots”, installation and integration are not disruptive to ongoing operations, as implementation of axle counters is fast and completely non-intrusive.



Availability and advanced information

Frauscher axle counters are unaffected by common conditions such as flooding, snow, ice and electromagnetic interference. Replacing problematic track circuits subject to these conditions will have a direct positive affect on availability and maintenance. In addition to track section occupancy, the addition of Frauscher axle counters can provide advanced information regarding train movement such as direction, train speed, and wheel presence over the sensor, beneficial information for areas where overspeed and red signal overruns frequently occur.

Summary

Axle counters are a vital and fail-safe standalone method of train detection. However, the capability of Frauscher systems to co-exist with and overlay other technologies allows for quick “spot fixes” without compromising the existing system. Frauscher axle counters can be implemented to immediately improve availability and reduce maintenance, since often just 20% of equipment is malfunctioning, but causes 80% of system issues. Frauscher solutions offer compatibility, ease of installation and seamless integration to alleviate common system issues, also improving worker safety by reducing time on track for repairs and other maintenance.



Equipment

- Wheel Sensor RSR180
- Frauscher Advanced Counter FAdC®



Further information

Find more detailed product descriptions at www.frauscher.us

- Datasheet RSR180
- Datasheet FAdC®