FRAUSCHER

Track more with less.

## Application Solution

# Crossover Protection

Crossovers are necessary to provide flexibility to railroad operations, but create the need for protection of assets during switching maneuvers. Operators require that their signaling systems provide reliable, real-time awareness of trains moving through crossovers, ensuring efficiency of train movement and safety. Track circuit-based systems can fall short in crossovers, due to installation issues, high maintenance requirements and negative effects from environmental influences.

### Drawbacks of current systems

- Track circuits are difficult to install due to complex track configurations
- Environmental factors such as floods, snow, leaf fall, rusty rails and road salt can cause loss of shunt for track circuits
- Insulated rail joints (IRJ) utilized by track circuit technology require frequent and costly maintenance

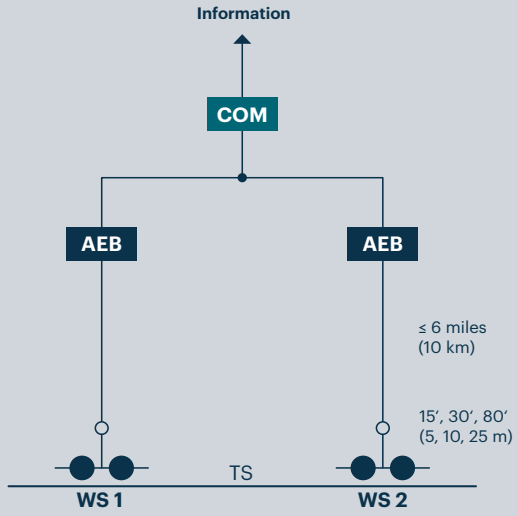
### Improvements needed

- Easy and flexible installation, especially for complex crossover track configurations
- Low maintenance and life cycle costs
- Protection of switches during traversing operations
- Vital, fail-safe detection of trains and maintenance vehicles, even in harsh environmental conditions

## Solution

Axle counting systems utilize wheel sensors to monitor occupancy status of configurable track sections. Wheel sensors are placed at entrances to each track section in the crossover.

The Frauscher Advanced Counter FAdC is a rugged, vital, fail-safe SIL 4 axle counter that provides increased reliability over traditional protection systems in crossover applications. RSR180 wheel sensors are mounted to the rail around each switch, and connected to the FAdC to form track sections. The system provides relay and/or Ethernet outputs for train presence, direction, and the clear/occupied status of track sections.

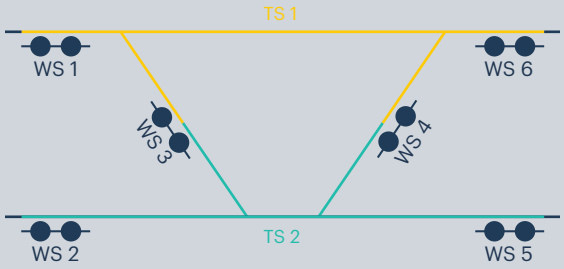



| | | | |
|---|---|---|---|
| AEB | Advanced Evaluation Board | TS | Track section |
| COM | Communication board | WS | Wheel sensor |

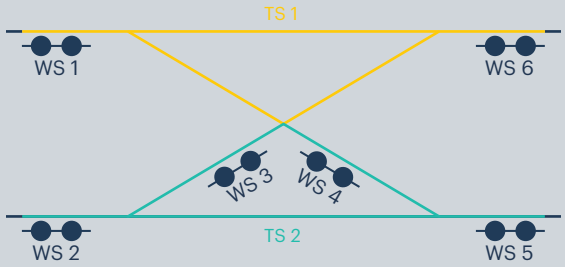
## For operators, the FAdC system provides

- Flexible configuration options, allowing the system to protect all types of crossover applications and meet specific customer requirements
- Components that are designed for maximum availability and reliability
- Wheel Sensors RSR180 that function reliably in harsh conditions, including flooding, snow, leaf fall, debris, rusty rails and road salt
- Low maintenance and life cycle costs
- Optional Counting Head Control (CHC) and Supervisor Track Section (STS) functions provide additional software level protections, increasing availability while maintaining vital SIL 4 operation
- Wheel sensors can be placed throughout the crossover to create individual track sections around each switch. AEB evaluation boards continuously monitor wheel sensor signals, and maintain a count of axles within programmed track sections.

## Standard Crossover

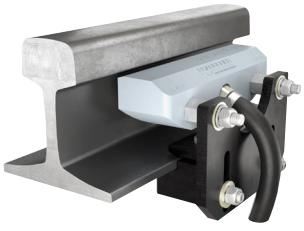



## X-Type Crossover




## Equipment

- Wheel Sensors RSR180
- Frauscher Advanced Counter FAdC



## Further information

Find more detailed product descriptions at **www.frauscher.us**

- Datasheet RSR180
- Datasheet FAdC