



Application Solution

Triggering Trackside Equipment

Efficient asset management depends on reliable triggering of trackside equipment, and the accurate collection of data such as number of traversing axles, speed, direction, and the exact positioning of a wheel. When choosing a technology to trigger equipment such as AEI readers, hot box detectors, wheel impact load detectors and many others, operators must focus on high reliability and accuracy. Improper functioning can negatively impact the railroad's bottom line, while reliable triggering allows the attainment of precise asset management information.

Drawbacks of commonly used systems

- Negative effects of harsh environmental conditions
- Sensitivity to electromagnetic interference
- Time consuming and costly installation
- Frequent sensor calibration requirements
- High maintenance requirements
- Compatibility issues with existing equipment
- Errors due to slow train speeds, direction changes or trains stopping on top of the sensor

Improvements needed

- Reliable triggering of equipment even in harsh weather or deteriorated track and ballast conditions
- High resistance to EMI and track return current
- Quick and easy installation
- Minimal calibration requirements and the ability to calibrate remotely
- Low maintenance requirements
- Ability to seamlessly integrate with downstream controllers and other types of equipment
- Accuracy of detection, center pulse and zero speed capabilities



Solution

Frauscher wheel sensors address the challenge of maintaining uptime and reliability for triggering trackside equipment applications. Their performance has been consistently proven in harsh conditions such as snow, heavy rain, and extreme temperatures. They are also unaffected in the presence of electromagnetic interference, and easily handle trains traveling at low to zero speed. Some sensors previously used for triggering equipment relied on a magnetic principle, making them particularly susceptible to EMI and stopped trains. Frauscher wheel sensors operate on a robust inductive principle, resulting in improved reliability over magnetic sensors and various other sensor technologies.

Frauscher wheel sensors provide a level of triggering accuracy that is not possible with other commonly used technology. Combined with our Wheel Signal Converter WSC, the Frauscher Wheel Sensor RSR110 can determine when the wheel is exactly centered over the sensor, and in that instant output a pulse to ensure accurate triggering. The WSC also allows for remote adjustment of wheel sensors if needed.

Designed with an open interface, Frauscher wheel sensors easily integrate with existing equipment and downstream controllers. Additional benefits include a simple installation process, ease of calibration (trackside or remotely), and low maintenance requirements. These are just some of the factors that contribute to the superior performance of Frauscher wheel sensors for triggering trackside equipment.

Application Examples

1. AEI Readers and Hot Box Detectors

Miscounts are virtually non-existent with Frauscher wheel sensors. Even in adverse environmental conditions, when exposed to EMI, current drifts, or when trains travel at slow speeds, they continue to function reliably. Pulses provided by the RSR110 + WSC are sent consistently, allowing the operator to determine accurate axle counts without interruption.

2. Vision Monitoring Systems

Frauscher wheel sensors can detect trains up to 280 mph, allowing accurate image capture without requiring the train to slow down. Data outputs from the RSR110 and Wheel Signal Converter WSC can detect the exact positioning of the wheel, determine direction of travel, and enable speed calculation.

3. Wheel Impact Load Detection (WILD)

The ability of Frauscher wheel sensors to maintain consistent triggering of WILD equipment, regardless of weather conditions or track current, is a significant benefit for operators. The RSR110's reliability prevents wheel anomalies from being missed, avoiding damage and potential safety issues. Detection failures can be common with less robust triggering equipment.

4. Lubricators

Frauscher wheel sensors easily integrate with lubrication systems, providing reliable and accurate triggering. The data outputs provided by the RSR110 and Wheel Signal Converter WSC can be used to measure the time between wheels passing, as well as train speed, allowing lubricators to properly control the frequency and amount of lubricant released.

5. Rail Car Positioning

The RSR110 and WSC generate outputs that indicate precise rail car position, and these outputs are used to trigger equipment that accurately locks cars in place. Use in these applications guards against spillage of product when loading and unloading cars. The RSR110's robust design also makes it suitable for applications that involve moving platforms and high vibration environments. It can also be used for weighing scales and similar systems.

6. Automatic Door Opening

Outputs from the RSR110 can be used to trigger proper positioning of doors on subway platforms before opening. This application requires reliability and precision to ensure rider safety. The RSR110 can also be used to trigger automatic doors, such as rail car washing garages or other maintenance facilities in yards. These are just some of the possible uses for the RSR110 to trigger trackside equipment, with new custom solutions being developed regularly based on customer needs.



Equipment

- Wheel Sensors RSR110
- Wheel Signal Converter WSC

Further Information

Find more detailed product descriptions at www.frauscher.us