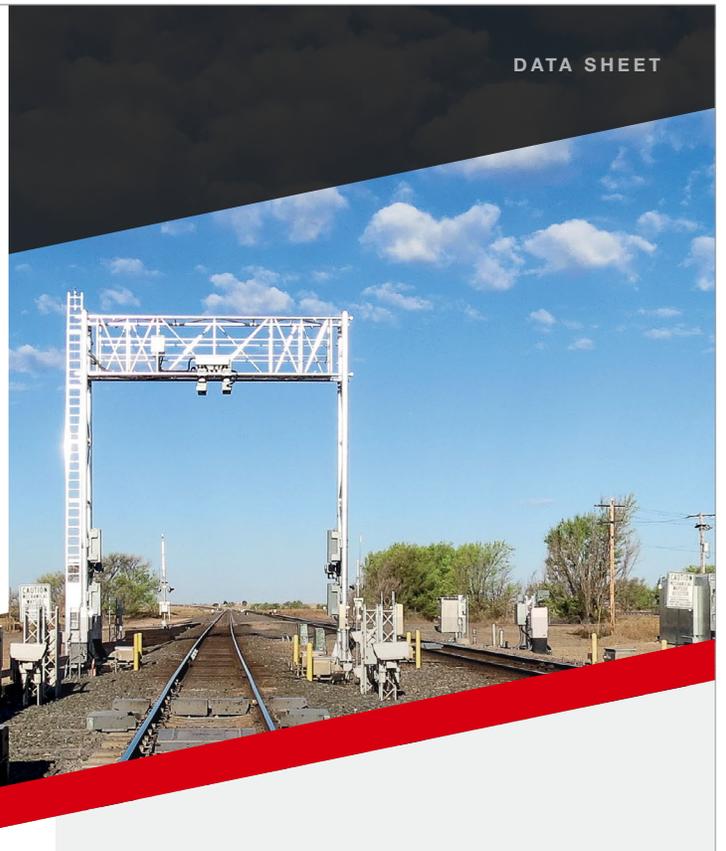




WAYSIDE CONDITION MONITORING



FOR TODAY'S CHALLENGES

Railroads around the world face a common challenge: how to increase asset availability while minimizing costs. In the United States alone, Class I railroads spent \$2.7 billion in 2021 on locomotive and freight wagon repair and maintenance¹. Yet inspection and maintenance of rail assets continues to be a difficult task: labor intensive, time-consuming, and with safety risks.

Wayside Condition Monitoring is a comprehensive portfolio of solutions that provides non-contact proactive monitoring of rolling stock conditions. Spanning key components – including wheels, brakes, bearings, air hoses, cross keys – and extending to full train inspection, it combines machine vision with remote sensing technology and AI-driven analytics to optimize inspection for increased asset availability and reduced operational costs.

1: Surface Transportation Board R-1 reports, 2021

POWERED BY LEADING TECHNOLOGIES

Wayside Condition Monitoring brings together Beena Vision's advanced digital high speed imaging and non-contact measurement technology with Track IQ's sensor-based systems to produce an industry-leading suite of wayside inspection solutions.

Together, these technologies provide the following capabilities:

Automated Condition Monitoring

Highly detailed condition assessment of train components – ranging from wheel surface condition to full train inspection – while operating in service and at high speeds.

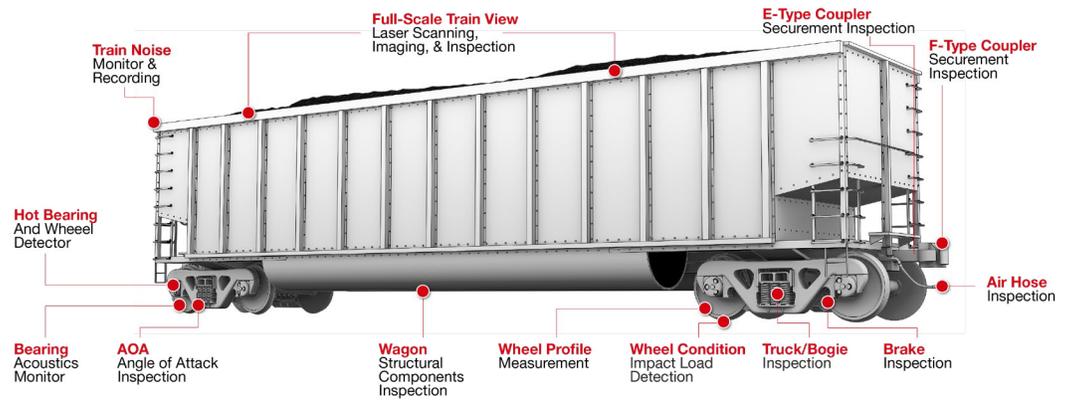
Optimized Maintenance

Identify defects for proactive maintenance and optimized life cycle management.

Advanced Analytics

Machine vision algorithms tailored to customer inspection requirements.

COMPREHENSIVE PORTFOLIO OF INSPECTION SOLUTIONS



HOW IT WORKS

Data / Image Capture

Utilizing advanced vision systems and acoustic, thermal, vibration, and noise sensing technologies, the system automatically captures images and measurement data while the train is operating at track speed.

Processing

The acquired images / measurement data are processed by algorithms customized to inspection requirements and condition defects identified.

Transmission

Images and data are securely transmitted to a cloud-based platform for centralized storage and reporting. Detected issues are automatically routed to internal teams.

Inspection Insights

Data visualization, alarm management, and data analytics are centrally available through a comprehensive web-based interface.

BENEFITS & OUTCOMES



Streamline Inspections & Operations

Automate the inspection process through continuous condition monitoring. Improve the accuracy, quality and consistency of asset condition data.



Optimize Manpower

Better utilize manpower resources as "fixers not finders", saving time and money.



Increase Reliability & Availability

Identify defects sooner and preempt component failure issues.



Maximize Asset Life

Use condition data to schedule and perform maintenance effectively and to maximize asset life.



Improve Safety & Compliance

Detect faults and identify early indicators that may lead to safety incidents to help mitigate incidents and improve safety.

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