AOAView

TRIMBLE AOAVIEW SYSTEM

ANGLE OF ATTACK (AOA) INSPECTION

Trimble® AOAView™ is an automatic non-contact AOA inspection system that measures angle of attack (AOA) and back to back (B2B) on both wheels of a wheelset simultaneously during a train pass at mainline operational speeds. It also provides data for the analysis of truck (bogie) performance.

Trimble AOAView system uses multiple high-speed LIDAR sensors to determine the wheel flange location for both wheels on an axle. The scanner box is installed on a steel tie (sleeper) between the rails and provides measurements that are insensitive to track fluctuations due to dynamic loads. Extremely accurate measurements of back-to-back distance, tracking position and other bogie geometry are also generated.

Acquired LIDAR data is processed by a set of image processing algorithms to reconstruct the wheel flange wall profile and to report measurements. The AOAView scanning system and processing algorithms are designed to operate in all ambient light and weather conditions.

Processed data from the Trimble AOAView system is integrated into the Trimble CMMS™ (Condition Monitoring Management System) software to provide web-based access for data visualization, alarm management, and data analytics. Automated alarms on the measurements and component condition can be used to facilitate condition based maintenance workflows.

AOAView's rugged design enables operation in harsh rail environments at mainline operational speeds. The design of the system includes a self-cleaning mechanism and protective shutters to facilitate continual operation and reduce manual maintenance interventions.

Installation of the Trimble AOAView system does not require any major track modifications. An existing concrete or wood tie (sleeper) is replaced by a specially designed steel tie (sleeper) which the scanner box is mounted onto. The system is installed between the rails and has sufficient clearance for most rail grinding machines and other track maintenance equipment to pass through the location without interference.

The data that AOAView generates enables rolling stock operators to improve and optimize their maintenance processes. Wheelset misalignment and other bogie geometry problems can be identified and maintained earlier, reducing costly incidents. Data driven predictive maintenance practices can be used to optimize bogie performance and maximize component lifecycles.
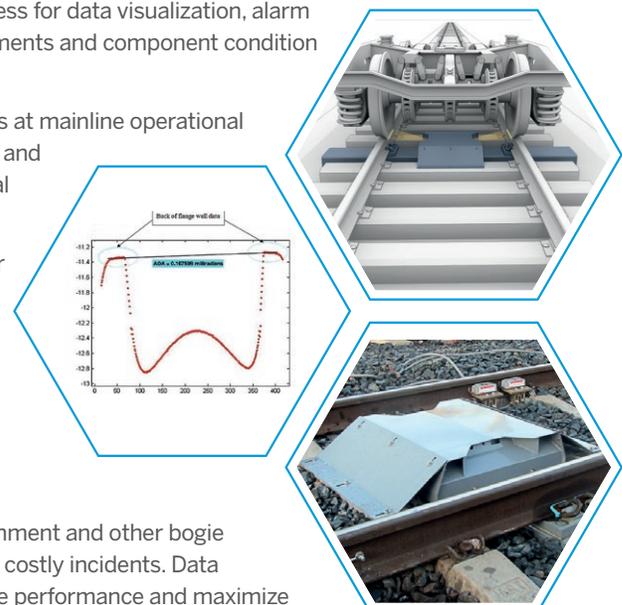
⊕ Trimble.

INSPECTIONS & MEASUREMENTS

Trimble AOAView system inspections and measurements include:

- Axle angle of attack (AOA).
- Axle tracking position.
- Back to back (B2B).
- Truck (bogie) tracking error.
- Truck (bogie) lateral shift.
- Truck (bogie) rotation.
- Truck (bogie) interaxle misalignment.
- Detection of truck (bogie) hunting if multiple units are installed.

Depending on the rolling stock types and requirements, the system's measurement outputs may require optimization or customization.

FEATURES
System Features

- Bi-directional system.
- Inspection and measurement at mainline operational speeds.
- Operates in extreme environments.
- Installed in track using a steel sleeper (tie).
- Easy maintenance.
- Air purge unit for system cleaning.
- Automatic defect reporting.

Software Features

- Digital image acquisition/processing.
- AEI (RFID) integration.
- Automatic reporting.
- Web-based database/visualization (with Trimble CMMS™ (Condition Monitoring Management System) or TrainWatch™ software).
- Remote monitoring/control.
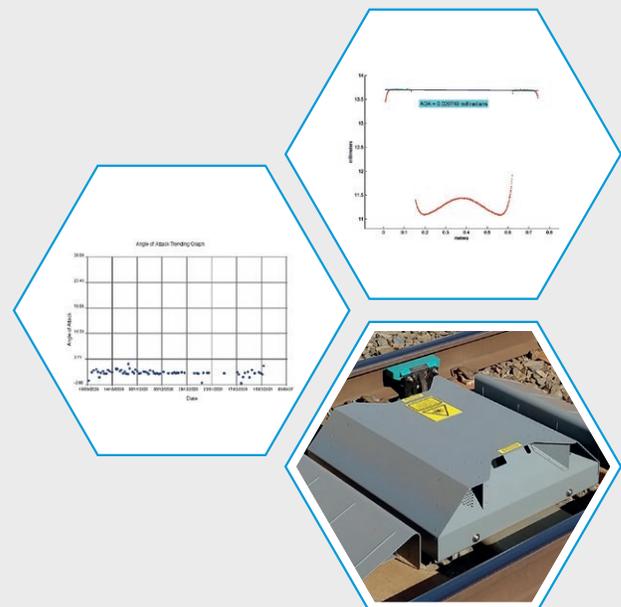
Specifications subject to change without notice.