BrakeMAP-Shoe

BRAKE SHOE DETECTOR (BSD)

INFRAVIS



KEEPING RAILROADS SAFE WITH PRECISION VISION

DETECT. ALERT. PREVENT.

Up to 140 km/h
OPERATING SPEED (~90 MPH)

>1,200
AXLES PER TRAIN PASS

–40 to 60°C
OPERATING RANGE (–40 TO ~140°F)

<1 kW
PEAK POWER CONSUMPTION

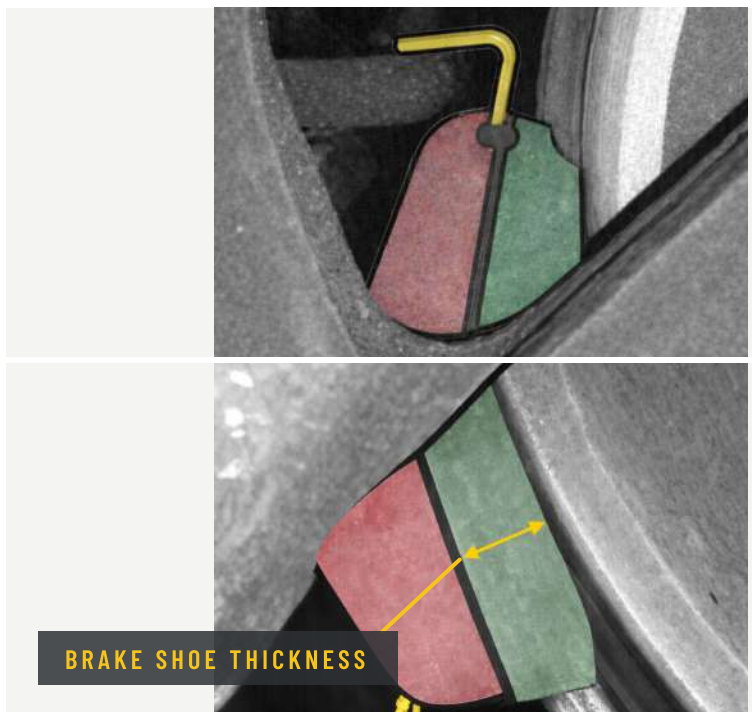
IN-MOTION BRAKE SHOE INSPECTION

The INFRAVIS BrakeMAP-Shoe — Brake Shoe Detector (BSD) uses machine vision to reliably provide railroad stakeholders with accurate, in-motion brake shoe condition monitoring that supports the business demands common to both freight and passenger operations.

Engineered for harsh rail environments and rapid deployment, it installs quickly track-side with minimal site preparation. Its precise optical data provides early warning of mechanical issues that could affect braking performance and abnormal conditions that can compromise safety, accelerate asset deterioration, and contribute to poor overall performance.

With clear insights into brake health, railroads and fleet managers can apply condition-based asset management strategies proven to improve fleet availability and reliability while lowering the total cost of asset ownership.

MEASURED PARAMETERS



- Brake Shoe Thickness (top and bottom)
- Brake Shoe Key Presence and Security
- Brake Shoe Alignment
- Missing Brake Shoe
- Broken Brake Head

DATAMAP-ENABLED ANALYTICS

- Brake Shoe Wear Trend
- Side-to-Side Asymmetry
- Brake Shoe Replacement / Consumption, by Position

INFRAVIS LLC — Norcross, GA, USA www.infravis.tech +1 (770) 818-6919 info@infravis.tech

INFRAVIS

BrakeMAP-Shoe

MACHINE VISION INSPECTION

EVERY SHOE, EVERY PASS

BrakeMAP's optical sensors capture high-resolution imagery of each brake shoe assembly as it passes, detecting wear, misalignment, and missing or damaged components in motion — without slowing or stopping the train. Built-in diagnostics continuously monitor system health, and the system alerts in real time when a defect is identified.

CAPTURE INSPECT ALERT



Areas of Interest — Brake Pads, Highlighted in Orange

TECHNICAL SPECIFICATIONS

TRAIN SPEED	Up to 140 km/h (~90 mph)
TRAIN LENGTH	>1,200 axles per pass
MEASUREMENT METHOD	Machine vision / optical inspection
ANALYTICS	Configurable image-analysis models
OPERATING TEMPERATURE	Railroad grade, –40 to 60°C (–40 to ~140°F)
POWER REQUIREMENT	<1 kW peak
COMMUNICATION	Ethernet / GSM / other supported interfaces
ALARMS	Real-time radio "talker" alerts for immediate fault notification
INTEGRATION	DataMAP / customer maintenance & enterprise systems, with flexible data formats for seamless integration



RAPID TRACK-SIDE INSTALLATION — MINIMAL SITE PREPARATION

SYSTEM HIGHLIGHTS

- Robust, railroad-grade design engineered for harsh operating environments, featuring off-the-shelf components whenever possible
- Rapid track-side installation with minimal civil work
- Installed by operator with minimal training or special tooling
- High-resolution in-motion imaging with controlled illumination for consistent image capture regardless of ambient light or time of day
- High-precision brake shoe measurement and inspection at speeds up to 140 km/h (~90 mph) for trains exceeding 1,200 axles
- Flexible communications and data formats for seamless system integration
- Integrated diagnostics for system health monitoring and reduced maintenance
- Easily removed for track maintenance

SYSTEM BENEFITS

- Delivers reliable performance across freight and passenger operations to improve fleet availability
- Supports condition-based health monitoring with accurate, in-motion brake shoe measurement and inspection
- Enables proactive maintenance planning and optimized scheduling
- Improves brake system-related safety, supplementing manual inspections
- Lowers the total cost of ownership by identifying wear issues early and addressing root causes

PART OF THE INFRAVIS ECOSYSTEM

DataMAP

BrakeMAP integrates with DataMAP for robust data analytics, rules-engine alerting and system health monitoring. And DataMAP is agnostic: it ingests data from all your wayside detection systems — not just Infravis hardware — to become your single, best-in-class software suite for wayside monitoring.

EXPERIENCE THAT DRIVES SAFER, SMARTER RAIL OPERATIONS

At INFRAVIS we build on decades of engineering innovation in rail equipment monitoring to deliver the latest in wayside detection.

INFRAVIS LLC — Norcross, GA, USA

www.infravis.tech +1 (770) 818-6919 info@infravis.tech