

# apis<sup>®</sup> Automated Pantograph Inspection System



Passenger Train Pantograph

## Traditional Inspections

Traditional mechanical inspections of railcars and locomotives are a dangerous but vital element of railway safety. Trained mechanical teams often perform inspections in challenging conditions. Rail companies need safe, reliable networks yet need to control operating expenses. Inefficient inspection processes can result in excessive dwell times where trains sit idle when they should be producing revenue.

## Automated Inspections

The Automated Pantograph Inspection System automates the inspection process and provides mechanical teams with the latest technology to improve and optimize equipment inspection workflows. These systems ultimately reduce line of road failures due to mechanical defects, improve shop capacity and network velocity, making passenger operations safer and more reliable to sustain.

## Overview

The Automated Pantograph Inspection System (**apis**<sup>®</sup>) is an intelligent pantograph imaging and evaluation system that virtually eliminates the need for routine manual pantograph inspections.

The system combines high-resolution pantograph imaging with a robust and user-friendly command-and-control interface for remote inspection.

## How It Works

- Automatically captures high-resolution images of pantograph components.
- Railcars are identified using AEI or RFID data.
- Digital video images are linked to their corresponding equipment and stored in the SQL database as a single record.
- Inspection data is automatically stored a minimum of 30 days and size limits of the data are fully configurable by the customer.
- Operations staff use the **centraco**<sup>®</sup> command-and-control interface to review and flag images.
- Equipment identified in need of repairs are then scheduled for maintenance.



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## duostech

Duos Technologies provides a broad range of sophisticated intelligent technology solutions with an emphasis on mission critical applications.

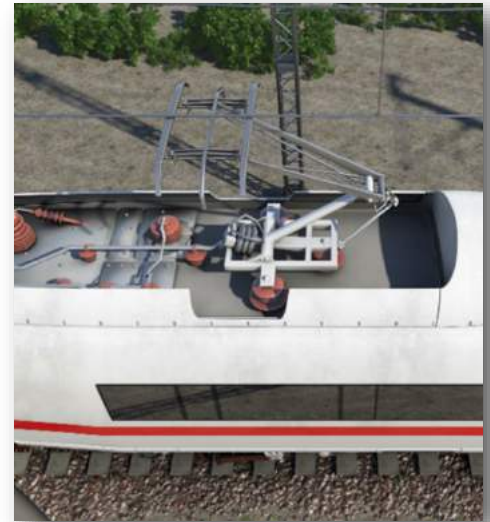
We combine an innovative business philosophy with a focus on customer service.

Our specialty is the development and delivery of turnkey solutions for rail-centric critical infrastructure systems.

All products, systems and solutions are backed by a 24 x 7 x 365 global training, maintenance and service program.

### System Features

- Virtually eliminates the need for routine manual pantograph component inspections.
- Keeps railcars in service and helps keep maintenance teams more efficient by repairing assets, rather than scheduling idle time just to examine pantograph components.
- High-resolution cameras and infrared illuminators capture and archive digital video and inspection data of pantograph components.
- AEI or RFID readers identify passing railcars and match to video data.
- Enables remote detection of defects such as bends, chips, cracks and other worn conditions.
- Immediate notification of pantograph defects for manual inspection.
- Enables remote inspections of pantograph components from any authorized web-connected workstation.



Passenger Train Pantograph (top view)

### Remote Inspection Software

**apis<sup>®</sup>** and the **duostech** family of railroad inspection technologies utilize the **centraco<sup>®</sup>** (Centralized Command and Control) software platform. This user interface is a state-of-the-art intelligent information management platform, based on a powerful open and scalable architecture, and the latest in artificial intelligence.

The interface allows end users to efficiently review identified defects and to take action through a customizable response and work order system. Browser-based, **centraco<sup>®</sup>** provides the power of mobility in the most challenging and dynamic environments.



Sample User Interface