

Autonomous Track Geometry Measurement System (ATGMS)



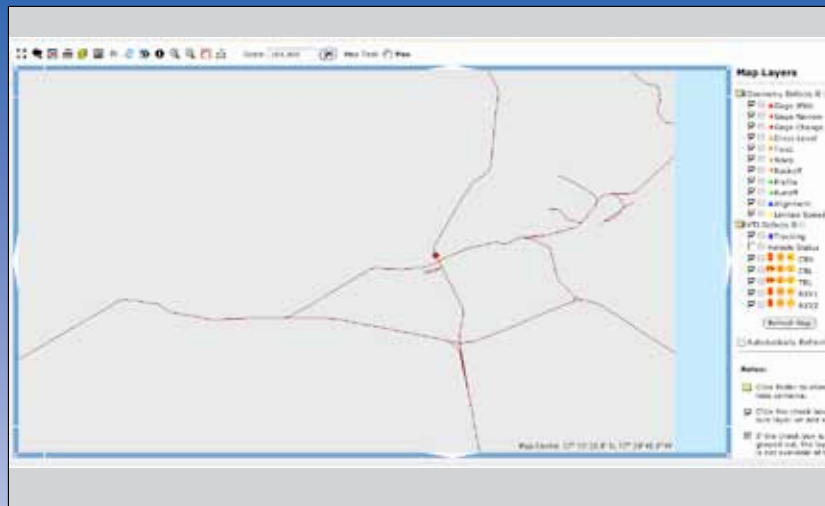
Unrivalled experience advancing
unmanned inspection
technology and producing
reliable results

Accurate and reliable track geometry measurement data is essential for immediate and long-term maintenance planning. ENSCO, Inc., a leading provider of track geometry measurement systems, has built upon its expertise in providing reliable, unmanned inspection systems to develop the ATGMS. ENSCO's ATGMS provides reports on geometry conditions – including those pertaining to gage, crosslevel, alignment, surface/profile and limiting speeds in curves – with the same accurate and dependable performance as ENSCO's traditional track geometry measurement systems without the need for an onboard crew.

Three-pronged approach

ENSCO's ATGMS is comprised of three essential components – an onboard unit located on a rail car containing a full instrumentation suite, a processing server to collect the critical information from the host rail car and a communication link between the onboard unit and the server. The system's onboard unit provides the sensors, computing platform and location determination technology required to deliver accurate track assessments. ATGMS employs a communication link, typically employing widely available cellular service, to provide data to interested parties in near real-time; if cellular service is not available the system queues data until it can be transmitted. The processing server receives data from the onboard unit and reports events identified by the autonomous inspection to an enterprise data management system that uses ENSCO's TrackIT® web reporting tools for viewing, analyzing and driving maintenance decisions from the recorded data. The real-time nature of this connection allows for the identification and reporting of track defects to occur within one minute when the ATGMS is in areas covered by cellular service. Track condition reports can also be distributed via automated email directly to track maintainers or interfaced directly with railroad data management systems.





Proven results

The ATGMS was developed with the support of the Federal Railroad Administration (FRA) Office of Research and Development. The first system, installed on Amtrak's AutoTrain, logged over 230,000 service miles during its first year of operation.

The installation of the ATGMS on typical revenue service equipment offers several advantages over traditional track geometry measurement cars including increased frequencies of surveys – every train movement presents an opportunity to assess the track – and survey speeds that are often higher than those achieved with traditional inspection cars. Given the increased rate of data collection and the decreased cost associated with inspections, the use of ATGMS leads to early identification of track anomalies, resulting in a change in maintenance practices from reactive to preventative, ultimately reducing the number of emergency repairs and slow orders as well as track-caused derailments throughout the railroad industry.

The benefit of experience

ENSCO has deployed track geometry inspection systems since the company's inception in 1969. ENSCO is the sole supplier of track geometry measurement systems to the FRA and the preferred choice for premier inspection equipment for Amtrak. ENSCO has provided track geometry inspection systems to clients throughout the world including Beijing Metro, Brazil, the Chinese Ministry of Railways, Holland Company, Massachusetts Bay Transit Authority, New Jersey Transit, Canadian National and Union Pacific Railroad amongst others.

ENSCO has provided autonomous systems to monitor the interaction between vehicle and track since 2000 with the launch of Amtrak's Autonomous Ride Monitoring Systems (ARMS) on its Acela high-speed trainsets. ENSCO's autonomous VTI Monitors™, used to report excessive carbody, truck and axle accelerations using wireless communication, have been provided to passenger authorities and the Class I railroads throughout the industry.

The ATGMS can be configured to support any railroad's inspection standards and the reporting of defects can be enabled to meet any railroad's needs. Contact your ENSCO representative to discuss how an ATGMS can be customized to improve your operations today.

Features of the ATGMS include:

- Automated data assessment using algorithms based on the experiences of inspection system operators to minimize the need for post test reviews
- GPS self-calibrating wheel encoder for greater accuracy
- Laser protection systems to minimize the need for regular system maintenance activities
- Accurate location determination at one-foot intervals, even in GPS-denied territories
- Notifications transmitted using existing cellular networks, resulting in nearly real-time reporting and eliminating the need to establish costly communication solutions
- Remote administrative access to the system eliminates regular visits to the inspection equipment
- Power available through a variety of sources including existing power systems or solar arrays

ENSCO

800-ENSCO-VA

info@ensco.com

www.ensco.com