



Intellitrain Real Time Remote Locomotive Monitoring

Together, EMD's Intellitrain™ and the Locomotive Monitoring Center (LMC) are improving reliability and availability on locomotives worldwide. Intellitrain™ is a web based application which provides customers remote access to locomotive operation and performance day or night.

Real-Time Locomotive Monitoring Features

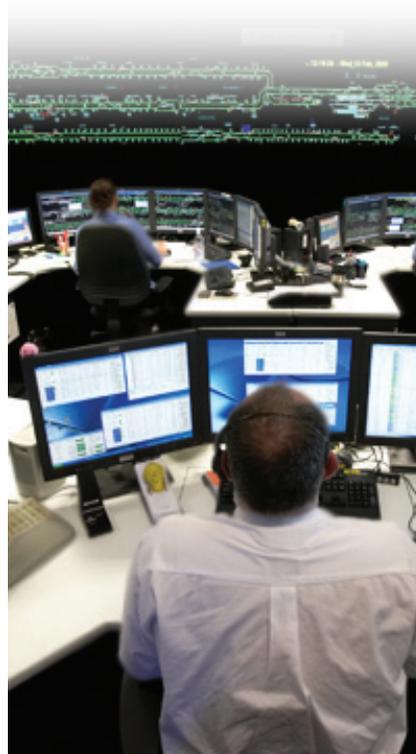
- GPS location, direction and speed
- Engine status (Loading, Isolated or Dead)
- Air brake status (Lead or Trail, Cut-in or Cut-out)
- Operational health status by subsystem
- Fuel Information
 - Current Level
 - Fueling History (Location & Quantity)
 - Usage (Daily/Monthly/Yearly)
- Remote event recorder downloads
- Automatic engine start stop (AESS) report data
- Access to faults logged and associated data packs
- Mileage and throttle position (Lifetime/Monthly)
- Current locomotive software versions

Configurable Alerts

Intellitrain allows railroads to set up alerts for a variety of locomotive events.

These alerts are sent directly to the user's e-mail or text device whenever the event occurs, day or night.

- Low fuel level
- Engine protection shutdown
- Hot engine
- Locomotive dwell
- Locked axle
- Additional configurable events (up to 25 alerts)



LOCOMOTIVE MONITORING CENTER

Locomotive Maintenance / IntelliTrain Monitoring

Increased Reliability

EMD's Locomotive Monitoring Center employs advanced Predictive Diagnostic tools to proactively identify potential failures. Together, IntelliTrain™ and the Locomotive Monitoring Center (LMC) are improving reliability and availability on locomotives worldwide.

- Proactively identifies issues which can lead to road failures
- Prevents costly component failures
- Addresses on-line failures in real time
- Increases fleet reliability

Increased Availability

EMD's Locomotive Monitoring Center provides failure specific troubleshooting instructions to ensure the locomotive is fixed quickly and correctly the first time. Troubleshooting instructions are sent directly to the locomotive computer display screen.

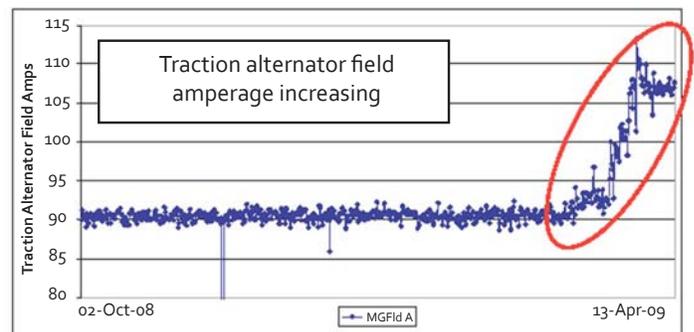
- Correctly and efficiently repair a failure the first time
- Reduce "No Fault Found" and repeat failures
- No more guessing as to what the fault code means

Examples of how LMC Predictive Analysis Prevents Catastrophic Failures

ISSUE: LMC predictive maintenance identified traction alternator field amperage increasing and notified customer before alternator damage occurred.

REPAIR: Alternator blower miswire corrected

IMPACT: LMC monitoring prevented catastrophic failure of traction alternator.



ISSUE: LMC predictive maintenance identified increasing temperature and notified customer before engine protection shutdown occurred.

REPAIR: Faulty cooling fan replaced

IMPACT: LMC monitoring prevented a road failure/train delay and saved potential engine damage.

