

# WIMWIM system

## WEIGH IN MOTION WHEEL IMPACT MONITOR

### INTRODUCTION

High Impact loads could lead to breaks in the rail system. Delayed customer payloads, unproductive track time, and secondary damage of equipment and track, increase costs dramatically. In a worse case scenario, broken components can lead to derailment.

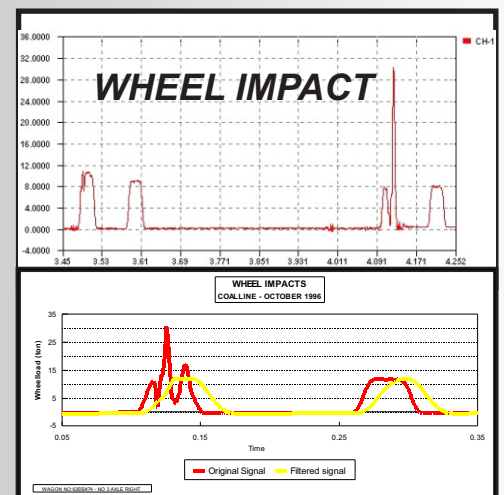
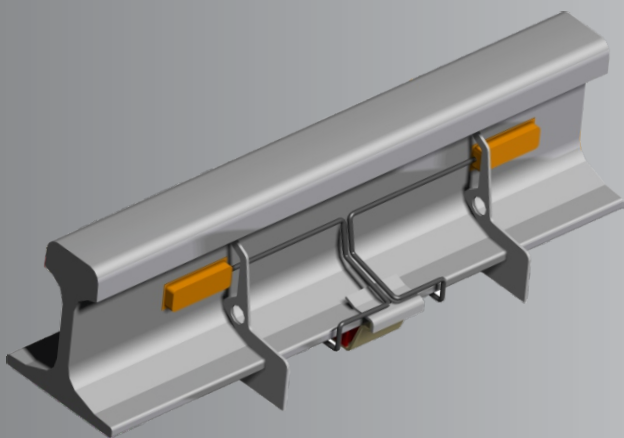
The WIMWIM comprises a wheel impact monitor, a weigh-in-motion system and skew bogie detection system. With WIMWIM problems and faults are indicated before major damage or expenses can occur.

### HOW IT WORKS

The system comprises multiple measuring cells constructed with strain gauges configured to measure vertical loads. The number of measuring cells depends on specific rolling stock wheel sizes. Signal processing algorithms are used to determine wheel defects.

Skew bogies are identified by the measurement of the lateral forces induced to the rail. Strain gauges applied to the web of the rail in a special configuration to measure pure lateral forces independent of vertical influences.

Mass measurements use the same strain gauges as used for wheel impact determination.

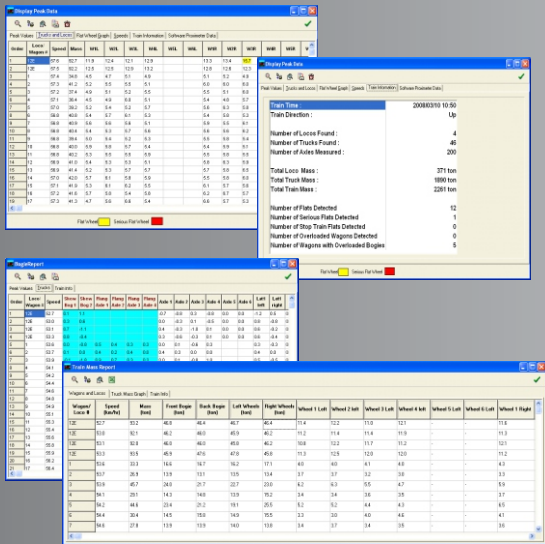


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## FEATURES OF WIMWIM

- Detect shelling, spalling and skid wheels
- Detect skew and flanging bogies
- Detect unsymmetrical or overloading of wagons
- Measure dynamics up to 70 tons per wheel and up to 20kHz per sensor
- Locomotive recognition within any part of the train
- Covers bi-directional traffic including high speed trains
- Speed determination of each vehicle
- Results available on the system for all traffic measured
- Train database with accumulated statistics
- Exception report can be transmitted to user specified locations
- Bi-directional communication to enable software and file updates
- Optional integration of vehicle tag number with WIMWIM System
- Industry standard hardware makes WIMWIM easy to deploy
- Proven track record with many sites



The screenshots show the WIMWIM software interface with several windows:

- Vehicle Peak Data:** A table with columns for Time, Locomotive, Speed, Mass, Axle 1, Axle 2, Axle 3, Axle 4, Axle 5, Axle 6, Axle 7, Axle 8, Axle 9, Axle 10, Axle 11, Axle 12, Axle 13, Axle 14, Axle 15.
- Summary Peak Data:** A summary window showing statistics for a specific time period (20080310 10:50):
  - Train Direction: 150
  - Number of Locomotives Found: 4
  - Number of Trucks Found: 200
  - Number of Axles Measured: 200
  - Total Loco Mass: 371 ton
  - Total Truck Mass: 1000 ton
  - Total Train Mass: 1371 ton
  - Number of Flats Detected: 12
  - Number of Swivel Flats Detected: 1
  - Number of Stop Train Flats Detected: 0
  - Number of Overloaded Wagons Detected: 0
  - Number of Wagons with Overloaded Bogies: 5
- Peak Data:** A table with columns for Time, Locomotive, Speed, Mass, Axle 1, Axle 2, Axle 3, Axle 4, Axle 5, Axle 6, Axle 7, Axle 8, Axle 9, Axle 10, Axle 11, Axle 12, Axle 13, Axle 14, Axle 15.
- Train Mass Record:** A table with columns for Locomotive, Axle 1, Axle 2, Axle 3, Axle 4, Axle 5, Axle 6, Axle 7, Axle 8, Axle 9, Axle 10, Axle 11, Axle 12, Axle 13, Axle 14, Axle 15.

