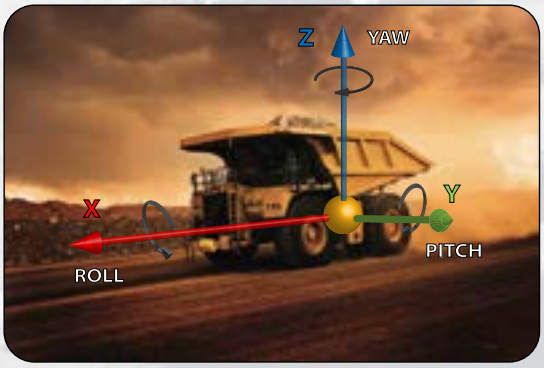
TPMS HUB Controller
MotionSense

Vehicle Location, Acceleration, and Orientation

Get a complete and accurate view of where your vehicles are and how they're moving with MotionSense, a combined Global Positioning System-Inertial Measurement Unit (GPS-IMU) built in to the HUB Controller.

MotionSense provides accurate location, speed, attitude and acceleration data for vehicles equipped with HUB Controller units to detect:

- Changes in acceleration along the X axis (speeding up/slowing down), Y axis (lateral or sideways acceleration while turning), and Z axis (vertical acceleration caused by bumps, potholes, rough road).
- Changes in orientation along the X axis (roll side-to-side when turning or on uneven roads), Y axis (pitch up/down hills or ramps), and Z axis (yaw when turning left/right)



Data Views and Interpretation

The TyreSense TS4 online application provides views of MotionSense data displayed in the Log Inspector, Vehicle Travel, Heatmaps, and Reports for vehicles equipped with TyreSense HUB Controller units.

- Log Inspector provides a graph showing three differents types of acceleration: 1) acceleration along the path of travel; 2) lateral roll (within turns); and 3) vertical bounce.
- Spikes in braking and lateral acceleration can identify occurences of hard braking and hard turns.
- Hard turns can be factors in tire bead separation. Acceleration and vehicle travel data can be used to determine where such incidents are occuring on site. This information can be used to modify roadway design or vehicle travel paths to prevent tire damage.

continued on reverse

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Use MotionSense data to gain valuable insights into operating conditions on your site. Prevent undue tire wear and damage, identify opportunities to improve roadway design, and address path-of-travel hazards before they cause incidents.

Vehicle Travel

TS4 users can select MotionSense data in the Vehicle Travel software application.

- Available data, shown as color-coded lines on the map and corresponding graph, include speed, acceleration/braking, lateral acceleration, vertical acceleration, vertical bounce, and rotation rate.
- The graph shows actual values recorded along the vehicle's path of travel. Arrow icons indicate the direction of force and vehicle movement.
- As the cursor is moved over the graph, the vehicle arrow on the map also moves, indicating the location where the data was recorded.
- Trends in acceleration data can be useful in identifying roadway issues and operator behavior that could be modified to reduce unnecessary tire wear and damage.
- Vehicle Travel shows more clearly where hard turns might be occurring and the strength of the forces acting on the vehicle. For certain makes of tires, a hard turn is one that exceeds 0.15 g lateral acceleration over 3 seconds. Reducing the occurrence of hard turning can help prevent bead separation.

Heat Maps

The Heatmaps module of TS4 can be used to pinpoint locations where high acceleration values are being recorded.

- High vertical bounce values, for example, can indicate rough road conditions or potholes.
- High lateral acceleration values can be used to detect areas where hard turns are occuring.
- Heatmap information can be used in conjunction with data logs and Vehicle Travel to build an accurate picture of vehicle activity trends for the site.

Reports

TS4 reports for MotionSense data include the Vehicle Acceleration report, which provides lateral, vertical, and braking data, grouped by pre-defined acceleration thresholds.

Contact your local branch for more information: RIMEX.com/company/locations

HUB MOTIONSENSE

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