

FleetInfinity Platform Module

Smart TPMS

Stay ahead of tire failures

Maximize tire lifespan and performance

The Challenges Fleets are Facing

In the complex ecosystem of fleet management and heavy transportation, tires are far more than mere rubber consumables; they are the vehicle's sole physical point of contact with the road and stand as one of the most decisive variables in the equations of safety, productivity, and supply chain sustainability. Transportation industry statistics indicate that, after fuel, tires account for the second-largest category of a fleet's Total Cost of Ownership (TCO).

Traditional tire management methods rely predominantly on periodic checks, visual inspections, and manual tire pressure monitoring using mechanical gauges. This reactive approach is not only highly time-consuming and prone to human error, but it also creates a dangerous "data blindness" during the intervals between inspections.

This is where the convergence of digital transformation and Internet of Things (IoT) technology changes the rules of the game. Transitioning from a reactive strategy to a fully proactive, data-driven approach requires a continuous stream of accurate, real-time, and reliable data.

The Smart TPMS module within the FleetInfinity platform has been developed specifically to bridge this information gap. This solution transforms the fleet's tires from silent components into "smart, connected assets" that broadcast their health status in real time.

Imagine a dump truck carrying a 40-ton load on an 8% mine gradient continues to operate in a state of 'data blindness' due to a hidden pressure drop in the rear tire and the absence of a real-time monitoring system. This leads to excessive sidewall flexion, severe friction, and the temperature exceeding the critical threshold of 80 °C, ultimately resulting in delamination and a sudden tire blowout. Consequently, the truck is grounded at the most critical point of the ramp, blocking the route and bringing the entire machinery loading cycle and mining extraction operations to a complete halt. Beyond severe safety hazards and rollover risks, this event imposes heavy tire replacement costs, towing expenses, and a drastic drop in fleet uptime; a catastrophic chain of events that could have been easily prevented by simply deploying a Smart Tire Pressure Monitoring System (Smart TPMS).

How it works

The operation of the Smart TPMS module within the FleetInfinity platform is built upon a seamless, multi-tiered IoT architecture designed to replace manual inspections. Industrial-grade sensors securely mounted on each tire capture precise pressure and internal temperature data in real time. Monitoring temperature alongside pressure is essential, as thermal spikes often serve as early warnings for dragging brakes, failing bearings, or impending blowouts.

These sensors transmit data wirelessly via radio frequency signals—typically in the 433 MHz band, which easily penetrates heavy rubber and steel—directly to the vehicle's hardware GPS tracker. Acting as an intelligent edge gateway, the tracker does much more than log location. It combines the localized tire data with real-time geospatial and operational telemetry, like vehicle speed and harsh braking events, to provide vital context.

The tracker then compresses and streams this enriched payload over robust cellular networks (GSM/LTE) to secure cloud servers. FleetInfinity's cloud processing engine immediately analyzes the continuous data stream against predefined baselines to filter out noise and false positives. It instantly triggers smart alerts on the managerial dashboard whenever genuine anomalies are detected, such as covert pressure loss or critical thermal spikes.

This continuous flow of information enables comprehensive remote monitoring and supports a proactive maintenance strategy. By addressing slow leaks before they escalate, fleet operators can prevent costly roadside breakdowns, optimize fuel economy, and safely extend the lifespan of their tire assets.

Main features

- Real-time monitoring of tire pressure and temperature
- Intelligent Alert System
- Comprehensive support for complex axle configurations and diverse fleet layouts
- Advanced analytical dashboards and integrated tire performance reporting
- Automated detection of thermal anomalies





How do we help?

wFleetInfinity's TPMS module transforms tire management from a traditional approach—reliant on guesswork and periodic manual inspections—into an integrated, intelligent, and data-driven strategy. By continuously monitoring critical thermodynamic variables such as pressure and temperature for each tire in real time, the system effectively eliminates operational data blindness and elevates the organization's paradigm from a reactive to a proactive model. Through the early detection of thermal anomalies before they escalate into blowouts and unplanned downtime, this module not only safeguards the fleet and human capital via multi-tiered, real-time alerts, but also delivers direct and measurable fuel optimization by maintaining optimal inflation and mitigating rolling resistance. Ultimately, this profound level of precise control guarantees maximum casing preservation and a significant reduction in the Total Cost of Ownership (TCO).



Why fleet managers choose this module

Extend Tire Lifespan

Maintaining optimal tire pressure prevents irregular wear and tear, extending tire longevity by 15% to 20% and significantly delaying costly replacements.

Optimize Fuel Consumption

Precise pressure regulation minimizes tire rolling resistance, leading to a direct 1% to 3% reduction in overall fuel expenses across your fleet.

Minimize Unplanned Downtime

Early detection of slow leaks and temperature anomalies prevents sudden on-road blowouts, reducing unexpected operational stops by up to 70%.



Your Savings

- Up to 50% Reduction in Tire-Related Breakdowns and Unplanned Downtime
- Up to 20% Extension in Tire Tread Lifespan
- Up to 30% Decrease in Overall Tire Procurement and Replacement Costs
- Up to 3% Reduction in Total Fleet Fuel Consumption (due to optimized rolling resistance)
- Over 80% Increase in Casing Preservation for Successful Retreading
- Up to 90% Decrease in Labor Hours Spent on Manual Tire Inspections

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