TACS™ – Tire Anomaly and Classification System

Quarterhill's TACS™ screens commercial vehicles to identify vehicles that have tire problems that affect safety and operating efficiency.

The Tire Anomaly and Classification System (TACS) supports the screening of commercial vehicles at highway (up to 100 mph) and ramp speeds at weigh station facilities to identify vehicles which are unsafe due to flat, missing, or mismatched dual tires. TACS is able to categorize tire anomalies for targeted enforcement, data collection, and driver notification purposes.

Quarterhill's TACS powered by VectorSense® is an in-road sensor technology that measures and analyzes tire contact patch data from vehicles in real-time as they drive over the sensor array. Quarterhill's TACS solution has been effectively identifying unsafe tires since its market release in 2017 and has been deployed at over 60 sites in 5 different countries. It has exhibited exceptional accuracy in identifying over 600,000 tire anomalies and counting.

TACS™ consists of the following components:

- **In-Road Sensors** – for tire detection and measurement
- **Roadside Electronics** – to capture information from the In-Road Sensors and pass this information to the weigh station for use by weigh station operations
- **Weigh Station Work Station, Software and Graphical User Interface (GUI)** – to present information to weigh station operators and support their setting of commercial vehicle screening criteria based on data provided by TACS

Integration with VI²M®, Quarterhill's cloud-based data collection, reporting and analytics software, provides long-term data storage and advanced analysis capabilities.

When connected with Quarterhill's iSINC® electronics, TACS is capable of integration to weigh station screening systems including: Weigh-in-Motion, Electronic Screening (ie: License Plate Readers, transponders, USDOT Readers, HazMat Readers, etc.), vehicle dimensioning systems, vehicle tracking systems, etc.

Features

- Detects dangerous tires in all configurations including flat, missing and mismatched dual tires
- Detects underinflated tires that negatively affect the fuel efficiency of commercial vehicles
- Measures continuously across the full lane width
- When used in conjunction with an iSINC® system, TACS offers several improvements to weigh-in-motion sorter systems:
  - With the Tire Type Identification Application, TACS™ has the ability to identify and categorize tire types for vehicles crossing the sensor array. Tire types that are identified include single, dual, and Wide-Based Single Tires (WBST).
  - Identifies wide-based steering axle tires to appropriately sort commercial vehicles that have higher allowable front axle weights
  - Detects off-scale vehicles
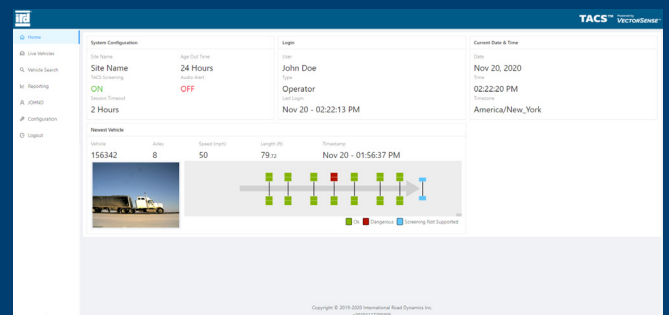
TACS includes software to visually identify tire anomaly locations

TACS™ – Tire Anomaly and Classification System

Features

In-Road Sensors and Sensor Interface Electronics

In order to support integrated operations, TACS includes three (3) in-road tire and axle measurement sensors spaced approximately eighteen inches (18") apart.

The Sensor Interface Electronics are housed in a roadside pull box, or in a roadside cabinet that is within 40' from the end of the sensor.

The In-Road Sensors have the following installation requirements:

- Each of the in-road tire measurement sensors are installed into a slot the road that is three inches (3") wide and one and one half inches (1.5") deep

- In-road inductive loops must meet local requirements; the recommended loop dimensions are 6' x 6', inductive loop wire shall be 14 AWG, IMSA 51-5. (Note: Preformed inductive loops may also be used if approved by local agencies)

- Standard lengths for in-road tire measurement sensors are 11.5', 12', 12.5' and 13'; other lengths are also available up to 17.5'

Installation of the In-Road Sensors (including cure time for the epoxy material) can be performed within four (4) hours.

Roadside Electronics

The In-Road Sensors connect via the Sensor Interface Electronics to the Roadside Electronics. The Roadside Electronics connect to and communicate with the Weigh Station Work Station which receives tire and vehicle record data in near real time via a network connection.

The Roadside Electronics operate and meet all performance specifications at all temperatures between -40˚F to +176˚F (-40˚C to 80˚C).

Weigh Station Work Station, Software and Graphical User Interface (GUI)

When combined with an IRD iSINC system and IRD operator display, the Software and Graphical User Interface provides a graphical representation of each vehicle based on axle and tire configuration, the vehicle speed, axle spacing, and alerts for tires found to have an anomaly.

TACS is capable of being displayed either on an independent display, or as an integrated part of the existing IRD operator display or virtual weigh station software:
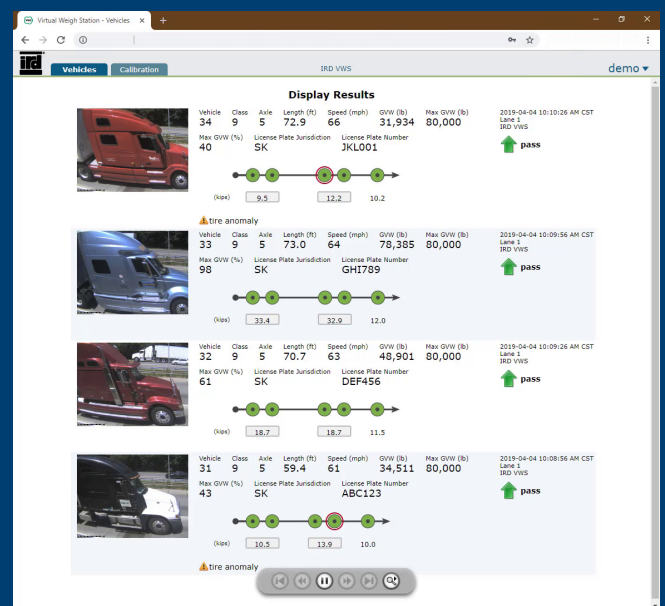
Virtual Weigh Station (VWS): tire anomalies flagged for station operator
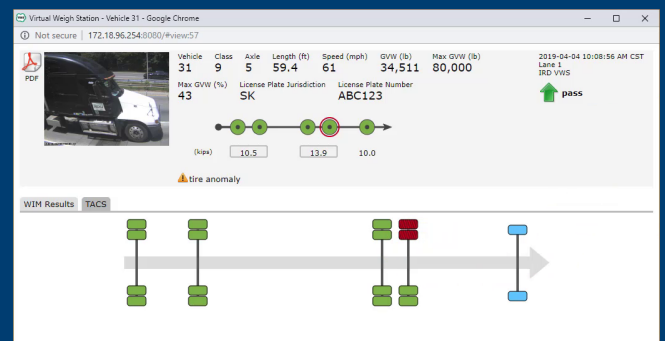
VWS vehicle record: position of tire anomaly is indicated on axles

QUARTERHILL
www.quarterhill.com | info@quarterhill.com