Application Note
Strip Sensors

Scientific Validation of Strain Gauge Strip Sensors' Superior Stability Over Time

A study published in Sensors (December 2024) by Ryguła et al. analyzed the long-term stability of Strain Gauge Strip Sensors for high-speed WIM over a three-year period (2022–2024). This peer-reviewed article confirmed that strain gauge strip sensors maintain exceptional accuracy over extended operational periods, leading to lower maintenance costs and improved overall WIM performance.

Intercomp Strain Gauge Strip Sensors are engineered for accuracy, calibration stability, and long lifespan

Scientific research and field studies confirm that strain gauge strip sensors provide superior stability and calibration retention in high-speed WIM applications.
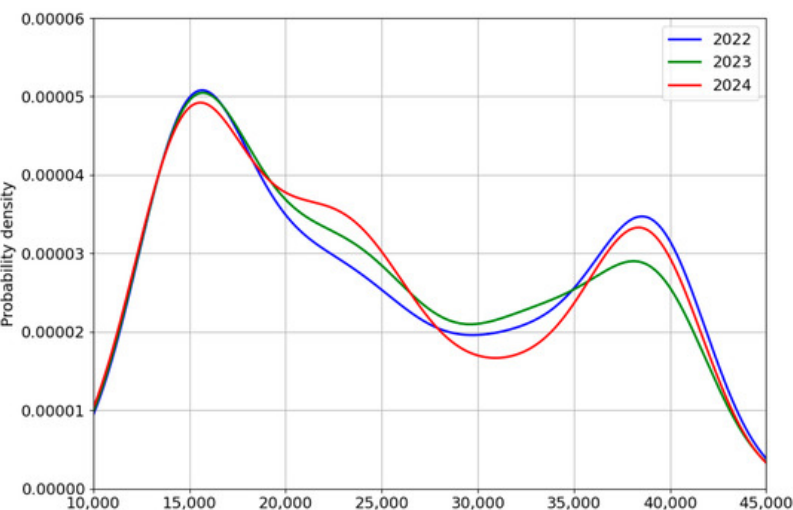

FIG. 9.   Gross vehicle weight spectra for vehicles in the reference category obtained from data recorded in each year in May. [1]

The research focused on: the effect of prolonged use without calibration on weight measurement precision; the long-term accuracy of axle load and gross vehicle weight readings; and the impact of road surface changes (e.g., rut depth) on sensor performance.

Despite the absence of site calibration over the three-year period, the study found only minor variations in sensor readings. The strain gauge sensors continued to meet class B+(7) using a 2-sensor layout, ensuring that total weight measurement errors remained below 7% according to COST323 standard.

With proven long-term accuracy, minimal recalibration requirements, and robust performance across diverse conditions, these sensors present an optimal choice for high-quality traffic data collection and vehicle overload enforcement systems.

[1]Ryguła, Artur, et al. "Analysis of Stability and Variability in Sensor Readings from a Vehicle Weigh-In-Motion Station." Sensors, vol. 24, no. 24, 21 Dec. 2024, p. 8178, www.mdpi.com/1424-8220/24/24/8178,

Intercomp®
advanced weighing technology . . . by any measure

3839 County Road 116 | Medina, MN
55340 USA Worldwide: +1 763-476-2531
intercompcompany.com