

camea

Why Use Our **WIM SENSORS?**

Small Road Structure Interference • High Accuracy • Simple Installation • Re-Usability

Main Issues of WIM Sensors 1-3

1

High Installation Depth of Sensors with Bedding

- Replaceable LS-WIM sensors are placed in a special bed that must be installed at a considerable depth, which significantly interferes with the road structure. Fast-moving vehicles may cause vibrations which affect the measurement.

2

Insufficient Height of Abrasive Layer

- The lower the abrasive layer, the more often the sensors must be replaced due to rutting. Typically, the height of the abrasive layer is around 8-10 mm.

3

Too Much Cutting in the Road

- Typical weighing station layouts consist of many different types of sensors which results in the need for excessive cutting in the road.

Main Issues of WIM Sensors 4-6

4

Limited Sensor Lengths

- Typical lengths are 1.5, 1.75 and 2.0 m. While these will cover most roads, they still do not offer the variability that may be needed for wider roads or road shoulders.

5

Limited Cable Lengths and Material Waste

- Typical lengths are 40 and 100 m. From experience, 40 m is often insufficient and the 100m cable is too expensive and too long. Cables must often be shortened causing unnecessary waste of material.

6

Packaging Waste on Site

- Conventional packaging often contains plastic and non-degradable materials that may remain at the installation site and contribute to roadside litter and environmental pollution.

Solutions Using CAMEA WIM Sensors 1-3

1

Low Installation Depth

- WIM strip sensors do not require a large bed to be installed in the road and do not cause a significant interference with the road structure. In addition, their small size allows them to measure very fast dynamic forces.

2

Higher Abrasive Layer

- The standard height of the abrasive layer of our sensors is 12 mm and it can be customized according to requirements (e.g., 20 mm). This will compensate deeper rutting, thus extending the time between road repairs.

3

Less Cutting in the Road and Less Cables

- Our innovative sensor layouts on weighing stations reduce the requirements for the number of different sensors, cutting into the ground and cabling.

Solutions Using CAMEA WIM Sensors 4-6

4

More Sensor Lengths

- Our standard lengths are 1.0, 1.25, 1.5, 1.75, 2.0 a 2.25 m. This can cover different road widths, shoulder lanes, etc. In addition, we also offer the option of custom lengths.

5

More Cable Lengths

- Our standard lengths are 40, 60 a 100 m. The 60m cable covers most site layouts. In addition, we also offer the option of custom cable lengths, thus reducing material waste with unnecessarily long cables.

6

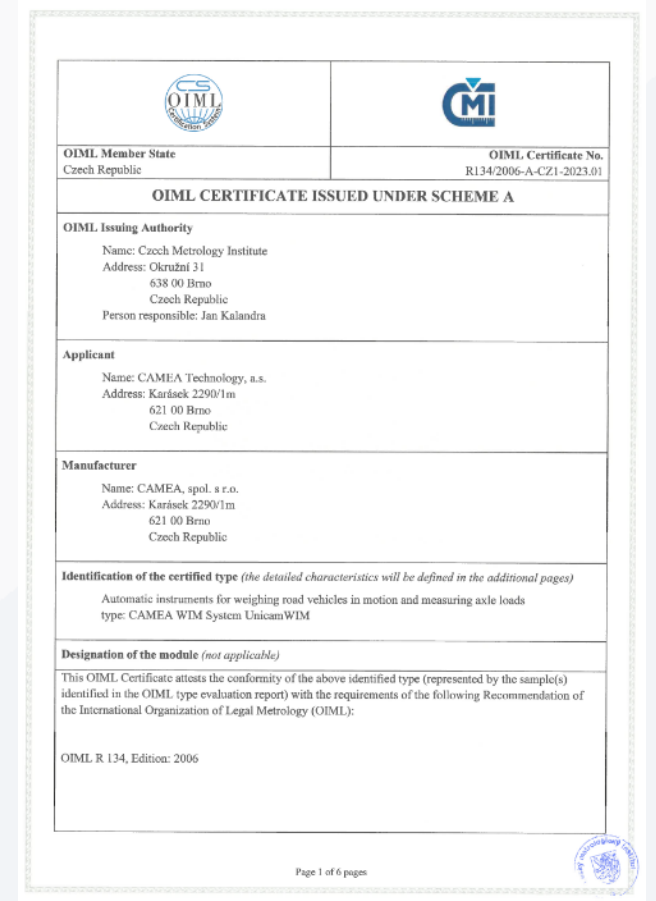
Eco-Friendly Packaging

- Our sensors are packed in fully biodegradable materials. Even if packaging remains at the installation site, it naturally decomposes and does not result in long-term environmental pollution.

OIML Certificate R134/2006-A-CZ1-2023.01

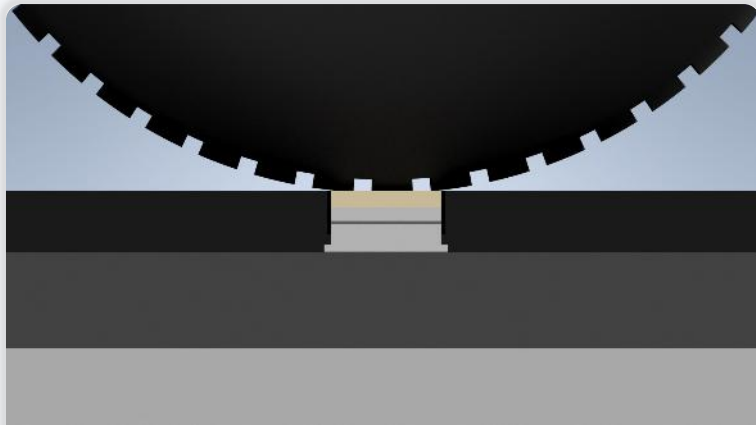
Our WIM system is certified for multiple piezo quartz sensor types.

Model	Type	Manufacturer
LINEAS	9195...	KISTLER Instrumente AG, Eulachstrasse 22, Postfach, CH-8408 Winterthur
US-PQ	US-PQ...	CAMEA, spol. s r. o., Karásek 2290/1m, 621 00 Brno-Řečkovice, Czech Republic

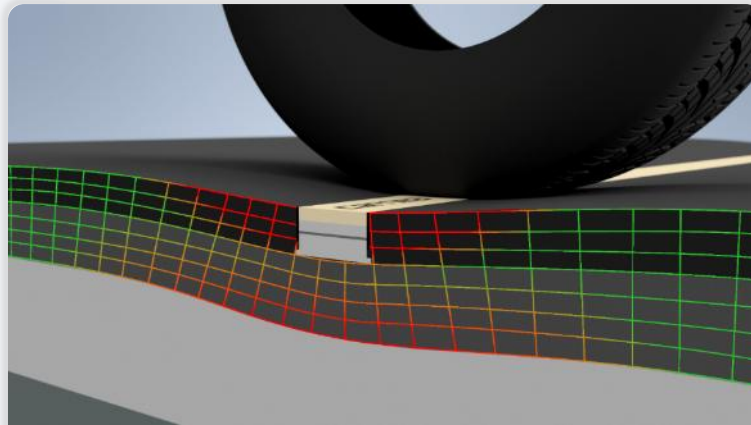


Advantages of Our WIM Sensor

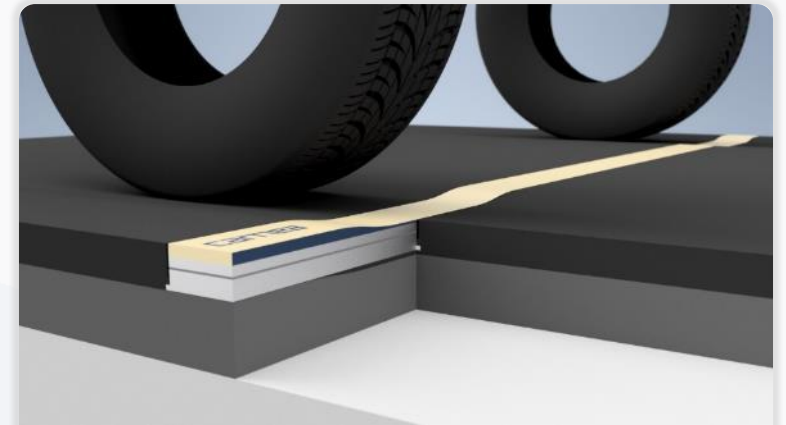
To address these issues, we introduced a WIM sensor design that enables replacement and extends the lifespan.



Simple Sensor Shape



Low Sensor Profile
without Bed



Higher Abrasive Layer

Simple Shape

The body of our WIM sensor is without side extrusions that make replacement difficult or impossible.



**Easy Extraction
from the Road**

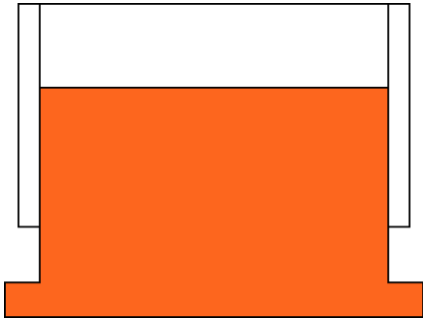


**Sensor
Re-Usability**

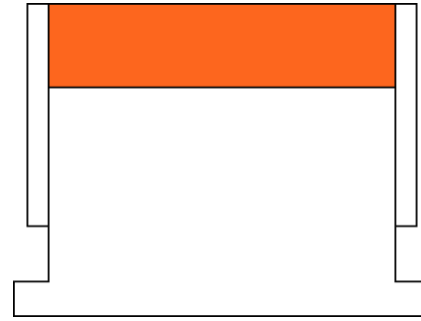


**Operational
Cost Savings**

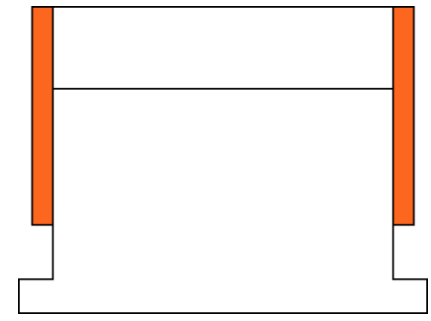
Simple Shape



The body has only a small bar to prevent it from coming loose.



The top part is covered by a replaceable abrasive layer.



The sensor is protected on the sides by an insulation tape.

Low Profile

Our WIM sensor has a low profile and can be installed without a bed that penetrates deep into the road.



Lower Road
Intrusion



Extended
Road Lifespan



Operational
Cost Savings

Higher Abrasive Layer

The low profile of our WIM sensor offers the possibility of installing a higher abrasive layer to compensate deeper ruts in the pavement.



**Extended
Sensor Lifespan**



**Less Frequent
Replacement**

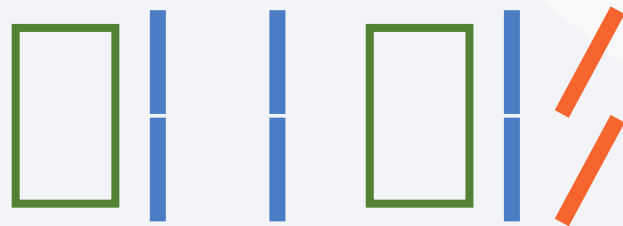


**Operational
Cost Savings**

Innovative WIM Station Layout

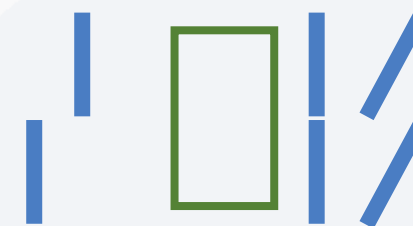
Typical Layout

- More sensors = More cutting in the road
- 2 inductive loops
- Tilted sensors use piezo polymer technology
 - Used for dual tire detection
 - Used to determine vehicle position in lane
 - Cannot be used for weighing
 - Cannot be used for pressure measurement



Innovated Layout

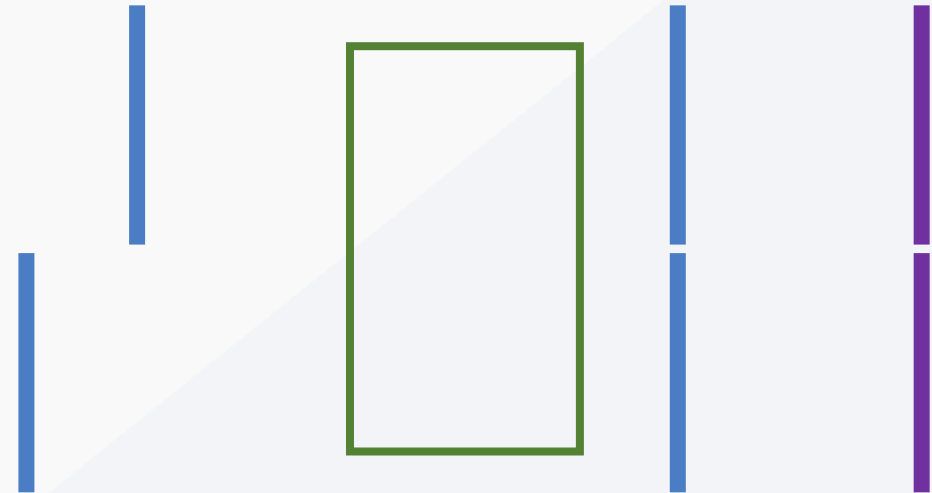
- Less sensors = Less cutting in the road
- 1 inductive loop
- Tilted sensors use piezo quartz technology
 - More accurate dual tire detection
 - More accurate vehicle position in lane
 - Used for weighing
 - Used for tire pressure measurement



Hybrid WIM Station Layout

- Even less cutting in the road
- 1 inductive loop is sufficient
- Digital sensors instead of tilted
 - Even more accurate dual tire detection
 - Even more accurate vehicle position in lane
 - Used for weighing to improve accuracy
 - Used for tire pressure measurement
 - Additional features
 - Measurement validation
 - Tire footprint measurement
 - Road deflection measurement

- Piezo Quartz Sensor
- Digital WIM Sensor
- Inductive Loop



CAMEA – Direct Enforcement Expert

