



WEIGH-IN-MOTION THE NEW STANDARD

Real-time insight into the smallest details
thanks to Weigh-in-Motion Fibre Optic technology

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Infra **SENSOR**
SOLUTIONS



Weigh-in-Motion Fibre Optic

The fibre optic sensors and detection loops that are used in the Weigh-in-Motion Fibre Optic system are installed well under the top layer of the road, making them maintenance free and unsusceptible to failure. Because the sensor is constructed from different segments, large amounts of detailed

WEIGH-IN-MOTION

A weigh-in-motion system has been developed to record the weight of vehicles without disrupting traffic flow. The information obtained makes it possible to tailor the design parameters of roads to the use made of them and to be able to efficiently plan required maintenance. The political focus on efficient transport has caused a change in the tyre profiles (width and air pressure) used in the transport sector. This change will influence how the asphalt deforms.

The ruts will become narrower and deeper. In short, how roads are used and how they wear will change. Measuring these changes is tremendously valuable when deciding on the type of asphalt to use and predicting its maintenance.

Objective

The objective of using a Weigh-in-Motion system is mainly to obtain information concerning:

- ✔ Traffic movements
- ✔ Road loads
- ✔ Traffic flow
- ✔ Predictability of maintenance
- ✔ Individual wheel loads
- ✔ Unbalanced loads
- ✔ Transverse position of axle loads
- ✔ Rutting profile

Recording of measurement data - Infra Sensor Solutions:

- ✔ Time of passage
- ✔ Vehicle speed
- ✔ Vehicle length
- ✔ Distance between vehicles in the same lane
- ✔ Number of axes per vehicle
- ✔ Total vehicle weight
- ✔ Weight per axle
- ✔ Weight per axle group
- ✔ Width per wheel
- ✔ Weight per wheel
- ✔ Distance between axles
- ✔ Vehicle category
- ✔ Temperature under the top layer
- ✔ Threshold alarms
- ✔ Unbalanced load alarm

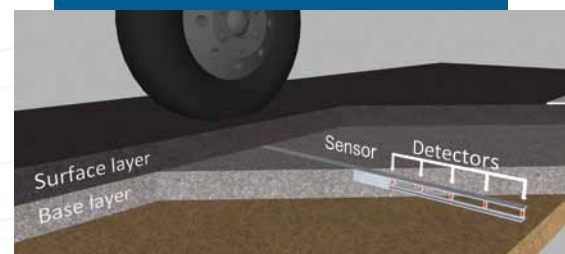
Advantages when compared to conventional systems:

- ✔ Longer service life (up to 20 years) due to installation under the top layer
- ✔ Higher availability due to insusceptibility to failure
- ✔ Higher data reliability due to fibre optic technology
- ✔ Greater accuracy
- ✔ No structural interruption of the top asphalt layer
- ✔ No sensor maintenance due to installation below the top layer
- ✔ No distortion of the measurement signal resulting from the transition between top layer and sensor
- ✔ Interface based on TCP/IP
- ✔ Flexibility in installation distances
- ✔ Distance between measurement station and sensor up to 50 km

Infra Sensor Solutions BV

Address De lind 12
4841 KC Prinsenbeek
The Netherlands

Telephone +31 (0) 763030060
Email info@infrasensorsolutions.com
Website www.infrasensorsolutions.com



information can be measured and recorded very accurately. The result is that a lot more information can be acquired than when conventional systems are used.

The measurement station can be located up to 50 km from the sensor and can be remotely read using a standard TCP/IP interface or can be linked to other systems. This is a great advantage when using the Weigh-in-Motion system for enforcement. It is easy to realise a link to vehicle registration number and camera systems to record possible violators.

Conventionele systems

In conventional systems, the sensors and detection loops are installed in the top asphalt layer. This means that the sensors are installed in grooves cut or ground into the asphalt after the asphalt is laid. Due to wear and rutting of the asphalt, the sensors must be replaced or adjusted on average every 1.5 years. Moreover, the sensors must be replaced during major maintenance of the road surface. Major maintenance is also necessary more often because installing the sensors affects the structure of the asphalt.

Temperature variations in the summer and winter cause the sensors to separate from the asphalt, requiring the repair of both the sensor and the road surface. This is very expensive.