

Kapsch WIM

Weigh in Motion



Road damage caused by overloaded vehicles is a serious threat to road infrastructure and poses a safety hazard to all motorists. This is why surveillance of heavy vehicles and enforcement of overweight is becoming increasingly important. Kapsch WIM enables road operators to systematically check vehicle weight and enforce weight limits.

Kapsch WIM allows vehicle weight to be checked at full speed without any disruption in traffic flow. Either on rural roads or highways, for single or multi-lanes. Kapsch WIM works as a stand-alone unit, and can easily be incorporated into Kapsch electronic toll collection and traffic surveillance systems.

Kapsch WIM supports additional applications, such as Automatic Number Plate Recognition (ANPR) cameras, Laser-scanner Vehicle Detection and Classification surveillance cameras and Dedicated Short Range Communication (DSRC) roadside and in-vehicle devices.

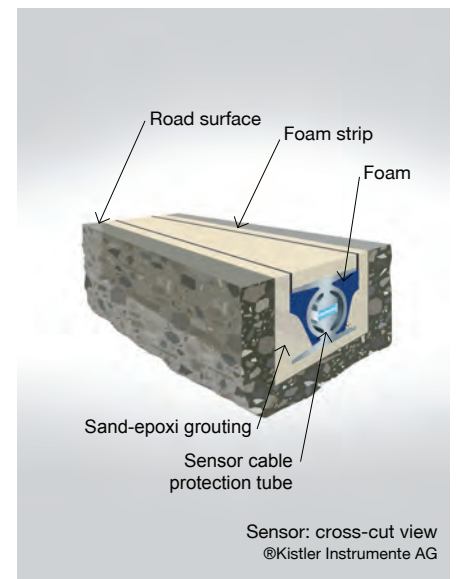
Kapsch WIM consists of controller unit, sensors and specially-designed software. The product uses high precision Kistler Lineas® WIM Sensor, which are installed into small pavement slots. The sensor signal is transformed and processed into

wheel based weight information. Kapsch WIM reliably determines and checks axle weights, gross weight and trailer weight. Additionally the vehicles are classified according to the customers vehicle classification scheme.

The installation of Kapsch WIM is performed by a team of Kapsch specialists with light machinery and special installation methods which avoid traffic closures and keep traffic flowing.

For ease in connection and integration to an existing solution, Kapsch WIM is available with standardized interfaces, including. serial interfaces RS232, RS422, RS485 (all up to 115,200 baud), ethernet connectivity with IP/TCP server and client configuration.

Kapsch WIM sets a new standard for high performance weight-in-motion solutions, especially when integrated with an electronic toll collection system, for a cost-effective overall solution.



Applications

Weight enforcement

Overloaded vehicles are enforced at Kapsch multi-lane free-flow tolling stations. Images of the vehicle and the license plate are stored together with the weight features to create an enforcement incident.

Pre-selection for vehicle inspection

Vehicles are preselected at WIM stations in front of vehicle inspection checkpoints. Suspicious vehicles are diverted to the vehicle inspection site for further examination.

Bridge & construction protection

Overweight vehicles are prevented from crossing bridges with limited capacity. The system can create enforcement records and stop vehicles by traffic lights.

Statistics/traffic research

Kapsch WIM enables road operators and researchers to include vehicle weight data into traffic statistics. It is a valuable information source for pavement management i.e. pavement preservation.

Access control

Vehicle weight is checked when entering (or leaving) factory premises, ports, military bases or other special interest zones.

Technical Features

Weight features (resolution 10 kg steps):

- Left wheel and right wheel
- Axle weight
- Axle groups
- Trailer weight
- Gross weight

Vehicle features

- Trailer detection
- Number of axles
- Twin tires
- Vehicle class (according to classification scheme)
- Speed
- Total Wheelbase (length from first to last axle, including trailer)

Passage and system information

- Unique vehicle number
- Time and date (NTP synchronization)
- Lane ID
- Vehicle trigger message
- Sensor status message
- System status

Measurement accuracy (in accordance with COST 323 class A(5))

- Gross weight (>3.5 tons) +/- 2%
- Single axle +/- 4%
- Group of axles +/- 3,5%
- Vehicle speed (>30 kmh) +/- 1%
- Interaxle distance +/- 1,5%

Interface Definition

- Serial interfaces (up to 115,200 baud)
 - RS 232
 - RS 422
 - RS 485
- Ethernet
 - TCP
 - UDP
- Synchronization
 - Absolute timing: UTC
 - Sync source: WAN, time server
 - ♦ Sync protocol: TCP, UDP, SNTP

Temperature range, operating

- Sensor -40°C to +80°C
- Charge amplifier 0 to 60°C
- Controller -40°C to +80°C

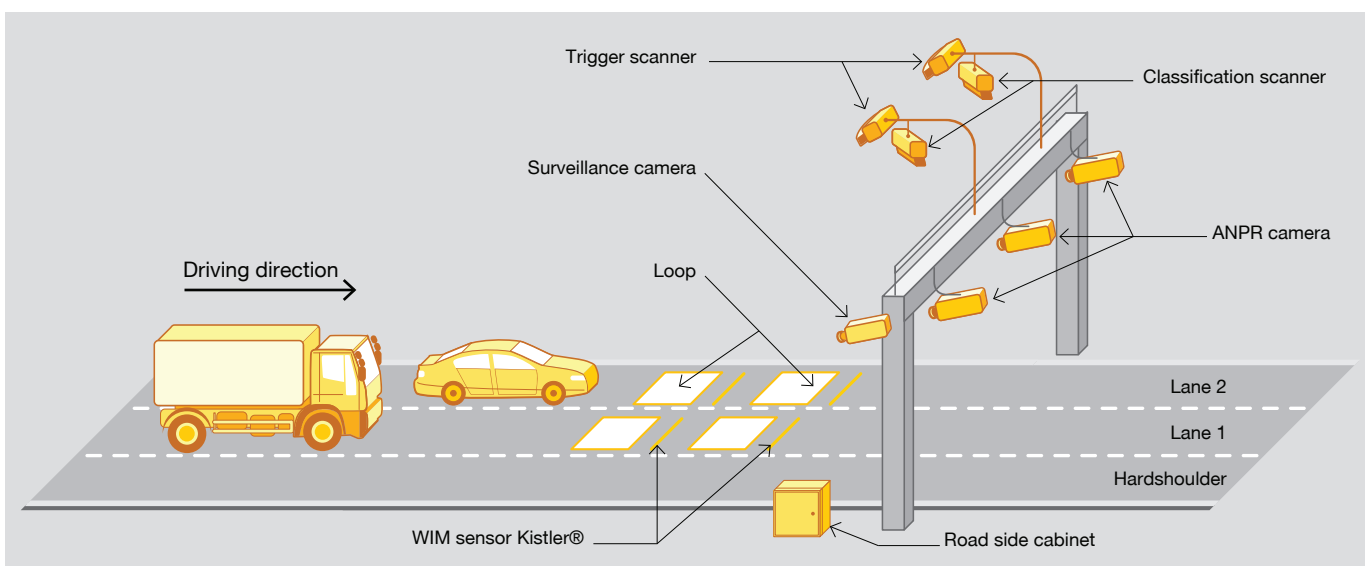
Temperature range, storage

- Sensor -40°C to +80°C
- Charge amplifier -10°C to 60°C
- Controller -40°C to +80°C

Enclosure

- Sensor IP68
- Charge amplifier IP65
- Controller IP66

*WIM sites with excellent pavement conditions are required to ensure highest accuracy class A(5).



Kapsch Group

The companies of the Kapsch Group – Kapsch TrafficCom, Kapsch CarrierCom and Kapsch BusinessCom – are leading the international markets for Intelligent Transportation Systems (ITS) and Information and Communication Technologies (ICT). Kapsch. Always one step ahead.