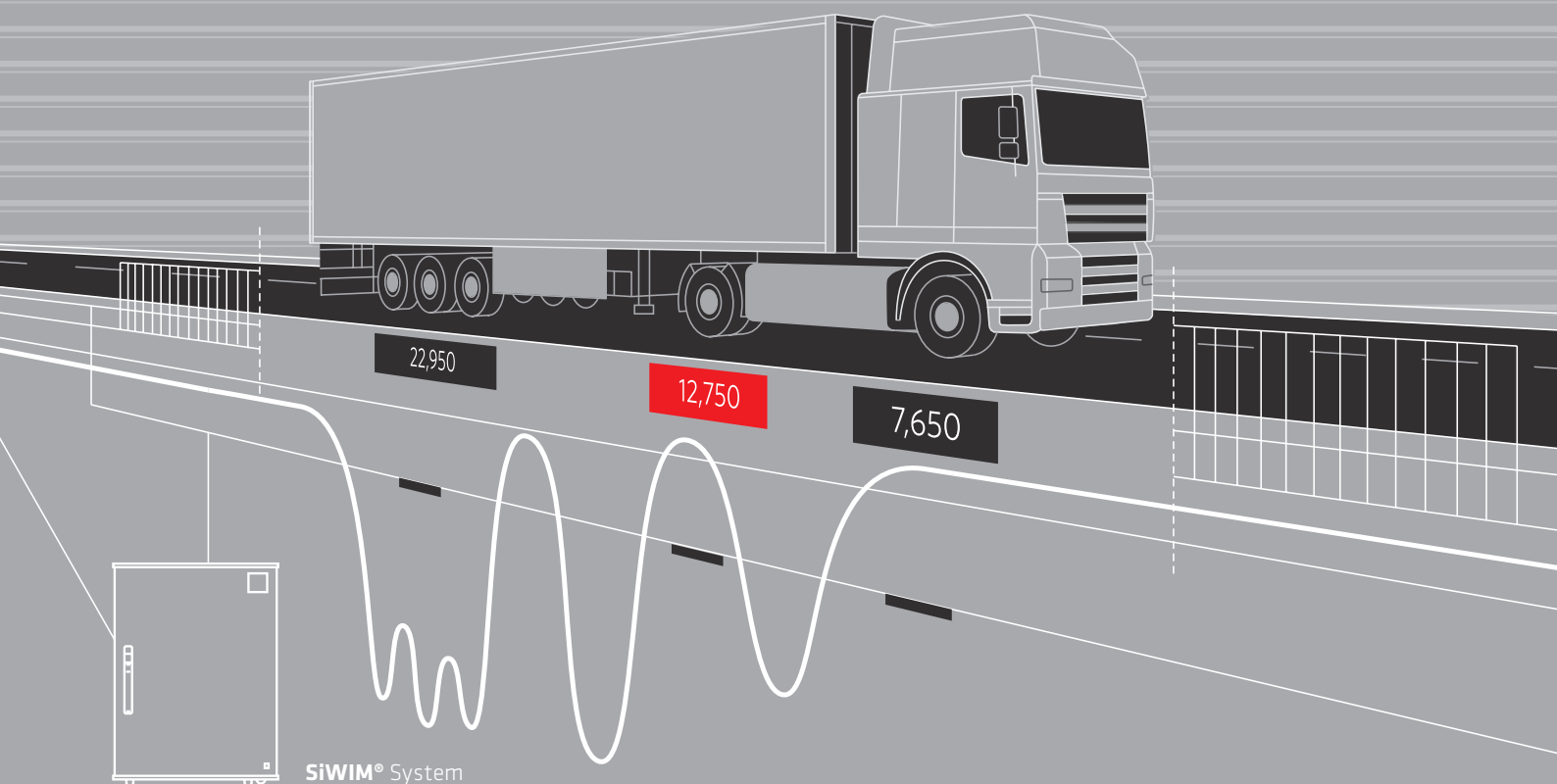


Advanced traffic and bridge management solutions



Scenario	# of vehicles	traffic loads
no lane change	394,0	353,4
with lane change	321,1	562,9

The screenshot displays the 'Load' tab of the RLE 1.0 - CRU2.0v1008.msi application. The interface is divided into several sections:

- Vehicle:** Lists axle weights (Axle 1 to Axle 10) and spacings. For example, Axle 1 is 7.545 t and Axle 2 is 12.161 t. The total length is 20.45 m and the total mass is 303.21 t.
- Load distribution parameters:** Shows calculated results for the selected beam (B2.25). It includes COV (0.03%), COV (0.03%), and COV (0.03%) for different load cases.
- Results:** Displays a deflection curve (mm) and a load distribution bar chart. The deflection curve shows a maximum deflection of approximately 0.001 mm. The load distribution bar chart shows the load distribution across the beam length.

The diagram illustrates the process of data collection and transmission from a vehicle to a central system. It is divided into four stages by red arrows:

- Stage 1:** A side view of a server rack with multiple drive bays. A red arrow points from the rack to the next stage.
- Stage 2:** A top-down view of a truck on a road. A red arrow points from the truck to the next stage.
- Stage 3:** A side view of a road with a sensor unit on the shoulder. A red arrow points from the sensor to the next stage.
- Stage 4:** A side view of a road with a sensor unit on the shoulder. A red arrow points from the sensor to the next stage.

- WIM data vs. Automatic Traffic Counters data.
- Theoretical parameters and real WIM data.
- Calculation of ESAL and nominal axle load.
- Overloading analysis.
- Overloading histogram.
- Life expectancy of road pavement.
- The applicability of WIM data in the reconstruction and dimensioning of road sections.
- Calculation of road layer thickness.
- WIM data distribution.
- Methodology for penalty calculation for enforcement.
- Road damage calculation.
- Road damage remediation calculation.

- Calculation of the traffic pattern for enforcement.
- Hourly analysis of heavy traffic.
- Traffic flow analysis with ESAL calculation.
- Analysis of outflow of freight vehicles on parallel roads, avoiding traffic control or tolling.
- Dangerous goods transport analysis.

- Bridge site specific traffic load modelling.
- Soft Load Testing of Bridges.
- Realistic Traffic Loading.
- Safety Assessment of Existing Bridges and Maximum Permissible Traffic Loading.
- Safety Evaluation of Bridges for Special Transports.



SiWIM® equipment

Hardware

Based on simple strain gauges, precise amplifiers, fast signal converters and a reliable computer, **SiWIM®** system is a set of basic components, which together form a high-tech, advanced, reliable and scalable system for use in a wide range of different situations, both in the areas of WIM as well as for the analysis of bridge structures.

Software

SiWIM's proprietary software, divided into areas of collecting, adjusting, processing, controlling, analyzing and presenting data, is designed with the user in focus. Sophisticated algorithms are used to significantly ease up all necessary processes, while retaining on demand access to all parameters with extreme expandability.

Collected data

- axle loads,
- gross weight,
- axle distances,
- speed,
- number of axles,
- class/type of vehicle,
- driving lane,
- time and date.



Sensor



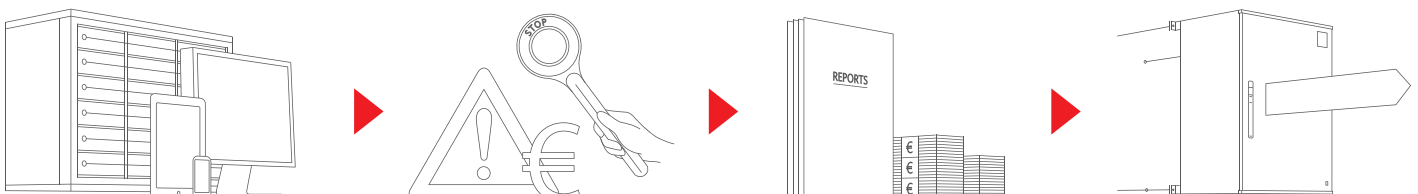
Set up of the sensors under slab bridge.

System features

- Mobility
- No road blocks
- Swift installation
- Web access
- High accuracy level
- Stealthy setup
- Modularity
- Damage-free installation



Mobile application



Recycling data

The **SiWIM®** system's unique ability to collect raw and aggregated data offers the users an opportunity to use it for a variety of different fields, such as:

- maintenance,
- planning,
- preselection for enforcement,
- WIM data distribution,
- calculation of the damage to the pavement and/or bridge,
- supervision of dangerous goods transports,
- planning special transports routes,
- bridge assessments.

Bridge protection

Bridge failures can threaten lives and are thus unacceptable. Optimized assessment of existing bridges, particularly if they are old, deteriorated and suffering from reduced carrying capacity, requires as accurate inputs as possible. **SiWIM®** provides two types of essential information to improve bridge safety analyses. Firstly, it collects traffic data and secondly, it identifies the true behaviour of bridges. Even on old and obsolete bridges, all or some of these **SiWIM®** features enhance structural assessment and regularly demonstrate sufficient structural safety without compromising the required safety levels from the codes.



SIWIM® System
CAN BE FOUND ALL OVER THE WORLD

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