

Press release

24/7 all-round bridge protection with SHM & WIM

New cloud-based software from Kistler combines Structural Health Monitoring with Weigh In Motion

Winterthur, May 2025

With its new cloud-based software platform, Kistler can now offer complete Structural Health Monitoring (SHM) solutions – from sensor to data – in combination with Weigh In Motion (WIM). Bridge operators benefit from accurate and highly available data on the actual behavior of infrastructures and traffic loads and can use enhanced software functions for automated monitoring and alerting in the event of damages. In this way, the overall bridge performance is thoroughly assessed using site-specific information, enabling targeted interventions to enhance bridge condition, extend service life and ensure structural safety.

Bridges are the backbones of infrastructure in almost every country in the world. Ageing, increasing traffic, overloaded vehicles and extreme weather conditions pose many challenges. Now the question is: How can bridge owners and operators safeguard their structures in an efficient and responsible way? Prolonging the life of bridges and preventing failures are the main objectives, which require proven and efficient Structural Health Monitoring (SHM) solutions.

A complete Structural Health Monitoring solution for bridges

Determining and monitoring the structural condition of a bridge is very difficult using inspections only – these are merely qualitative and carried out at long intervals. For a comprehensive structural assessment there are many parameters to consider, such as vibration, strain, traffic load, wind and many more. Every bridge is different and requires an individual solution, tailored to its specific conditions and needs of the operator. A complete SHM solution from Kistler – from sensor to data – meets these challenges and provides 24/7 automated bridge monitoring and protection.

Most advanced WIM technology fully integrated into Kistler's SHM

The SHM system comes with the unique Weigh In Motion system from Kistler, which monitors traffic 24/7 and automatically determines axle and vehicle loads with the highest accuracy at any speed without disrupting traffic. Key traffic data is captured and made easily available on the SHM data platform, with information such as vehicle loads, overloaded vehicles and cumulated traffic loads passing the bridge. Kistler's WIM systems integrate seamlessly with Structural Health Monitoring to provide a combined solution that delivers a perfectly synchronized data set for most advanced

evaluation of the bridge structural parameters in combination with real traffic data.

All in one cloud-based software platform

The Kistler SHM cloud software stores all collected data securely and continuously. It can merge structural, environmental and traffic parameters in order to deliver a highly accurate picture of the changes in the bridge's condition. All data is available anytime anywhere from the Kistler Cloud. Additionally, the cloud-based software platform offers a variety of special features that benefit bridge operators: Notifications and alarms deliver immediate information when conditions change, or defined thresholds are exceeded. Triggers can be set to easily collect relevant data sets in case of special events (event-based triggering) or on a regular basis (time-based triggering).

David Cornu, Head of Traffic Solutions at Kistler, says: "Our SHM & WIM systems ensure the collection of a comprehensive, robust, highly accurate and synchronized dataset, measuring all actions and resistances on the bridge. This allows for a direct comparison of the bridge's capacity with the effective loads, providing an accurate insight into its overall performance."

Full service ensures perfect fit of combined SHM & WIM solution

A dedicated range of services makes sure that customers get the right solution for their particular structure and scenario. Kistler engineers assist with infrastructure assessment, system design, installation and operation. In this way, customers benefit from a customized SHM solution that is tailored to their needs.

The new SHM software platform complements Kistler's complete solution, which includes bridge-mounted sensors, data acquisition units, and cloud data management software for Structural Health Monitoring. With its combined WIM & SHM technologies, Kistler focuses on highest data quality, high data availability, ease of use, and compliance with bridge monitoring guidelines. The comprehensive solution for bridge protection can be used on any type of bridge and is easy to install, configure, and operate.

Image material (please name the Kistler Group as picture source)



Structural Health Monitoring with Weigh In Motion solutions from Kistler are easily installed to safeguard bridges and help operators to make the best decisions.



Cloud-based SHM & WIM technologies from Kistler provide efficient and customized bridge protection solutions, meeting highest quality and accuracy standards.



The intuitive SHM cloud-based software platform provides easy access to bridge data in combination with the WIM traffic data.

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About the Kistler Group

Kistler is the global market leader for dynamic pressure, force, torque and acceleration measurement technology. Cutting-edge technologies provide the basis for Kistler's modular solutions. Customers in industry and scientific research benefit from Kistler's experience as a development partner, enabling them to optimize their products and processes so as to secure sustainable competitive edge. Unique sensor technology from this Swiss corporation helps to shape future innovations not only in automotive development and industrial automation but also in many newly emerging sectors. Drawing on our extensive application expertise, and always with an absolute commitment to quality, Kistler plays a key part in the ongoing development of the latest megatrends. The focus is on issues such as electrified drive technology, autonomous driving, emission reduction and Industry 4.0. Some 2,200 employees at more than 60 facilities across the globe are dedicated to the development of new

solutions, and they offer application-specific services at the local level. Ever since it was founded in 1959, the Kistler Group has grown hand-in-hand with its customers and in 2024, it posted sales of CHF 448 million. About 9 percent of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.