

Press release

Detecting and fining overloaded vehicles

Kistler develops new Weigh In Motion system for maximum accuracy

Winterthur, December 2019

With KiTraffic Digital, measurement technology expert Kistler is bringing to market the most accurate Weigh In Motion system yet available. The new system promises an accuracy of up to two percent GVW – independent of almost all external factors, such as driving maneuvers or road conditions. In this way, Kistler has created the conditions for automatically imposing fines for overloaded vehicles.

Weigh In Motion technology is already being used for various purposes – for example, to protect bridges and roads or to collect data for statistics. Sensors in the road surface record the weight of vehicles while driving without impairing the flow of traffic. However, the technology has not so far been capable of capturing overloaded vehicles directly after weighing in the same way as we are used to with speed controls. In the vast majority of countries, 'direct enforcement' – i.e. automated recording of vehicle data with subsequent notification of charges – requires vehicles to be weighed using certified, static scales. The authorities also need to be able to rely on the measurement results if, for example, the road quality is sub-optimal or a vehicle drives diagonally across the sensor. At most measuring stations where fines are imposed for overloaded vehicles, Weigh In Motion technology is therefore primarily used for pre-selection. Officers are then subsequently required to verify the measurement result with the aid of a static weighbridge and can only then order the driver to pay a fine.

Multiple individually measuring sensors

With KiTraffic Digital, the Swiss company Kistler has now succeeded in bringing a solution onto the market that significantly improves measurement accuracy and thus enables direct enforcement in accordance with legal requirements. The entirely new sensor incorporates multiple quartz crystals that independently deliver data via a digital interface. The digital measuring signal permits individual calibration of each quartz crystal and prevents signal interference on the transmission path.

Working from the measurement signals, sophisticated algorithms calculate the wheel, axle and total weight of each vehicle. Thanks to open standard interfaces, the system can be easily integrated into third-party traffic monitoring systems.

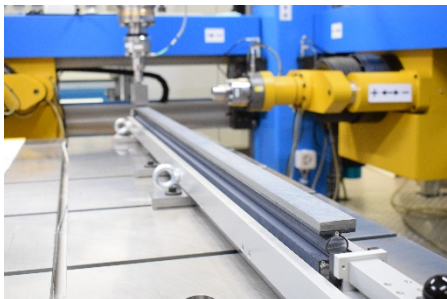
The new digital system also enables other potential sources of error to be ignored. For example, the sensor delivers reliable results even when the vehicle being measured is about to overtake and is driving diagonally over the Weigh In Motion sensor arrangement. At the same time, monitoring can be carried out on any number of lanes. The sensors also provide information on whether a vehicle is equipped with single or dual tires and can draw conclusions about the condition of the tires. The new system automatically records this information without the need for additional hardware. On the contrary, KiTraffic Digital even eliminates the need for the previously necessary induction loops for vehicle detection.

KiTraffic Digital will be presented to the public for the first time in April next year at Intertraffic Amsterdam.

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



Multiple quartz crystals inside the Lineas Digital sensor provide increased accuracy, even when the external conditions are sub-optimal.



KiTraffic Digital enables the individual calibration of each quartz crystal, which significantly improves the accuracy of the sensor.



KiTraffic Digital also features a graphical web-based user interface and can be easily integrated into higher level systems.



With KiTraffic Digital, overloaded vehicles could soon be fined via direct enforcement.

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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 owner-managed 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 2018, it posted sales of CHF 475 million. About eight percent of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.