

Press release

Measuring wheel forces – with no strings attached

KiRoad Wireless HDR: the new cable-free solution for vehicle developers

Winterthur, June 2021

The Kistler Group is launching the world's first wireless wheel force measurement system – an innovation that will massively reduce the effort involved in vehicle dynamics, durability and tire testing. The new KiRoad Wireless HDR features far-field telemetry compliant with the 2.4 GHz WLAN standard, and it can be used with existing RoaDyn wheel force transducers.

Vehicle developers use high-precision wheel force transducers (WFTs) to measure wheel forces and moments directly on the hub, yielding data that is especially critical for durability tests. These measurements are also used to evaluate vehicle dynamics and characterize tire performance. Wheel force transducers in the RoaDyn series were the first systems that used near-field telemetry to transmit data to the vehicle – and now, the measurement technology experts at Kistler have broken new ground yet again.

KiRoad Wireless HDR (High Data Rate) features remote wireless transmission for wheel force measurements – eliminating the need for time-consuming adaptations and cabling both inside and outside the vehicle. Automobile and tire manufacturers, suppliers to the automotive industry, research institutions and motorsport teams are among the many users who will benefit from reduced installation effort and easy operation – freeing up valuable time for over-the-road and on-track testing.

Cable-free measurements – with no protruding parts on the vehicle

This modular system consists of three components that are compatible with the 6-component wheel force transducers from Kistler, already established as the industry standard: the onboard unit (electronics), the wheel unit and the rotary encoder. Key features and benefits of KiRoad Wireless HDR:

- Data transmission via WLAN (wireless standard: IEEE 802.11n)
- No protruding parts – so vehicle contours are unchanged
- Replaceable battery pack with minimum capacity of 4 hours at –20°C (e.g. for winter tests)
- Digital data output for all channels via CAN, DTI and Ethernet
- System configuration and visualization of measurement results in KiCenter software or browser

A new rotary encoder concept used with the KiRoad Wireless HDR eliminates the need to attach any equipment to the outside of the vehicle. The wheel unit, with its integrated calculation and transmitter unit, is designed to be waterproof and is easy to install and remove, thus minimizing setup time for the test engineer.

KiRoad Wireless is easy to retrofit on Kistler RoaDyn WFTs

All RoaDyn WFTs that are currently in operation can be equipped with KiRoad Wireless HDR. This gives Kistler's customers the benefits of a cable-free measuring system for all 6-component WFTs: they can measure all forces and moments on the wheel in each of the three spatial directions, as well as wheel angle and angular speed. The new system met every expectation throughout intensive practical testing with pilot customers, and KiRoad Wireless HDR is available as of now.

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



The new wireless wheel force measurement system KiRoad Wireless HDR from Kistler consists of a WLAN capable onboard unit and a wheel unit with rotary encoder.



KiRoad Wireless HDR from Kistler can be used with all wheel force transducers from the Kistler RoaDyn series.

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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 2,050 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 2020, it posted sales of CHF 361 million. About 9% of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.

**For Kistler Wheel Force Tranducer information, sales and pricing, please contact
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