

Press release

Kistler presents new, freely orientable accelerometer

A cylindrical sensor and mounting block designed for precise modal analysis

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Correctly measuring acceleration on angled surfaces is one of the major challenges of modal analysis. With the accelerometer type 8775A, [Kistler](#) presents a new piezoelectric sensor solution that has been especially designed for angled structures such as airplane wings. Thanks to its cylindrical shape, it is freely orientable while meeting all other key requirements for accelerometers used in aerospace applications such as low weight, high sensitivity and low noise threshold.

During starts and airborne maneuvers, an airplane's wings and corpus experience acceleration from different angles. Modal analysis simulates the impact that acceleration has on an airplane in ground vibration tests. Choosing the right accelerometers is crucial for achieving precise test results. Working closely with clients, Kistler has recently developed the cylindrical accelerometer 8775A. Used either on its own or mounted into a Delrin mounting block, the accelerometer can be oriented freely in any direction perpendicular to the coaxial connector. It then measures vibration in the direction of the arrow etched onto the surface of the sensor. "The structure of an airplane impacts the direction in which acceleration hits specific parts," explains Joshua Kasprzyk, Product Manager Acceleration at Kistler. "When you take a wing, for instance, the curved structure affects the angles in which vibration will be seen. When using standard accelerometers with a square package for modal analysis, they can only be oriented towards angled accelerations to a limited extent. Our new sensor offers an optimal solution for this issue."

Meeting all requirements for modal analysis

To accurately measure vibrational input on an airplane's structure during modal analysis, accelerometers must fulfil several requirements: The sensors should be durable, lightweight, highly sensitive, have a high signal to noise ratio and very few crosstalk effects to other influences. For testing these complex structures, several hundred accelerators need to work smoothly alongside each other. The type 8775A accelerometer uses shear element technology that offers high immunity to base strain to meet these demands. Built from titanium, the lightweight, hermetic sensor covers an acceleration range of 50g and can withstand a range of temperatures. While aerospace and aircraft applications typically require the sensor to be mounted with the Delrin mounting block, it can also be used on its own for other applications. In that case, for instance in small and tight measuring

environments, the sensor can be fixed to the surface with a clamp or bolt. For underwater applications, it can be equipped with a selectable IP68 waterproof cable.

The new accelerometer 8775A was well received by its first clients: “Over the past year, this accelerometer has been tested by clients in modal analysis projects,” says Joshua Kasprzyk. “Their positive feedback has encouraged us to launch the sensor on a larger scale.”

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



Thanks to its cylindrical shape, the piezoelectric accelerometer 8775A can be oriented freely in any direction.



When used in combination with the mounting block for extra stability, the accelerometer can be oriented in any direction perpendicular to the coaxial connector.



For underwater applications, the accelerometer can be equipped with a selectable IP68 waterproof cable.

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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 2,000 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 2021, it posted sales of mCHF 411. About 7% of this figure is reinvested in research and technology – with the aim of delivering better results for every customer.