

Press release

One platform, maximum performance

High-end multi-channel charge amplifier with integrated data acquisition: Kistler launches KiBox Lab

Winterthur, September 2026

Kistler has launched KiBox Lab, its most advanced multi-channel charge amplifier for laboratory testing and other demanding measurement applications. Combining high-performance signal conditioning and filtering with versatile data acquisition (DAQ) and comprehensive digital connectivity in a single platform, KiBox Lab sets a new benchmark for precision measurements with piezoelectric sensors. The system delivers exceptionally low noise and drift, a wide input range, and high-frequency bandwidth, enabling highly accurate and reliable measurements across a broad spectrum of testing and research applications.

Test and measurement tasks in research and development regularly require high-precision sensors and measuring chains. Applications such as micro-vibration testing, cutting force measurement, or wind tunnel and material testing benefit from highly accurate, quasi-static and dynamic measurements with piezoelectric sensors. These applications also require low-noise signal conditioning and high-end, integrated data acquisition systems. Typical industries include aerospace and machining as well as many academic research facilities.

High-resolution dynamic measurement solution with integrated data acquisition

To address these demanding requirements, Kistler has developed KiBox Lab (5280A), a next-generation multi-channel charge amplifier for laboratory and advanced testing environments. The all-in-one platform combines advanced signal conditioning capabilities, including low-pass, high-pass and notch filtering, trigger functions, and virtual channels, with versatile data acquisition (DAQ), Ethernet connectivity, and digital interfaces such as a Web UI and REST API.

While KiBox Lab is primarily designed for precision measurements with piezoelectric sensors, its 16 input channels can be flexibly equipped with general purpose voltage input modules. In addition, support for piezoresistive sensors will be introduced through future input modules.

The new KiBox Lab 5280A significantly advances 5080A, the previous high-end charge amplifier from Kistler, in several key areas. First, it offers 16 freely configurable input channels instead of

eight and incorporates a modular data acquisition system with integrated digital connectivity. For applications requiring only signal conditioning, signals can also be routed via ± 10 V analog outputs.

Low-noise signal conditioning combined with wide charge range

A second major benefit is the significantly improved drift performance. Drift levels have been reduced by approximately a factor of three compared to 5080A, providing substantial advantages for quasi-static measurements. Additional highlights include exceptionally low noise levels and passive cooling, eliminating the need for a fan and allowing the instrument to be positioned closer to the unit under test.

Furthermore, the charge input range has been extended to ± 1 to 3,000,000 pC, while the frequency bandwidth reaches up to 300 kHz (-3 dB). With a sampling rate of up to 2.5 MSps per channel, KiBox Lab is well suited for capturing highly dynamic measurement signals. The system also supports the Precision Time Protocol (PTP according to IEEE 1588), enabling precise synchronization of multiple devices in complex test setups.

KiBox Lab features a browser-based user interface that is independent of the operating system and does not require an internet connection. A REST API allows seamless integration into existing software environments. Measurement data is stored on an internal 240 GB SSD and saved in MDF4 format, ensuring compatibility with Kistler jBEAM and numerous third-party data analysis tools. For cutting force applications, the system also includes direct connectivity to the Kistler PTS App.

The most advanced charge amplifier and DAQ solution from Kistler

Oliver Landertshamer, Product Manager Laboratory Charge Amplifiers at Kistler, summarizes: "KiBox Lab represents a major step forward in precision measurement with piezoelectric sensors. As our most advanced multi-channel charge amplifier and integrated DAQ solution, it combines outstanding measurement performance with flexibility and ease of integration. Customers benefit from exceptionally low-noise signal conditioning, an extremely wide charge range, modular data acquisition capabilities, and seamless connectivity, all within a single scalable platform."

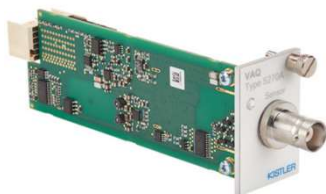
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The new KiBox Lab from Kistler is a high-end multi-channel measurement system with ultra-low noise and integrated data acquisition (DAQ) – predestined for demanding applications such as micro-vibration testing.



For laboratory testing, the new KiBox Lab from Kistler comes with HPEAQ charge amplifier modules (5077A) for industry-leading low-noise performance in measurements with piezoelectric sensors.



Thanks to the VAQ modules – providing ± 60 V general purpose voltage inputs for KiBox Lab – a great variety of sensors and signals can be connected to the new multi-channel DAQ system from Kistler.

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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 2,000 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 2025, it posted sales of 424 million Swiss francs. About 9 percent of this figure is reinvested in research and technology – with the aim of delivering innovative solutions for every customer.