

Press release

Outstanding signal processing and flexible measurement configuration

Kistler launches new all-purpose industrial charge amplifier with Ethernet

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Kistler's new multi-purpose charge amplifier ICAM-B is an extremely versatile device thanks to its unique combination of proven analog signal routing and integrated digital data transmission. These advantages make it ideal for use with piezoelectric sensors in almost any application. Users benefit from intuitive web interface control, a wide range of signal conditioning features, and a various IIoT connectivity options.

Sensor-based production control and monitoring play a crucial role in modern manufacturing environments. Integrated piezoelectric (PE) sensors deliver multiple benefits for industrial manufacturers in many sectors: they maintain and ensure the quality of the end products, they reduce downtimes and boost efficiency by reducing waste; they also support process optimization and data-driven decision making. Manufacturers wanting to take advantage of PE sensors in industrial environments need robust measuring chains that include suitable charge amplifiers; these convert the charge signal from the sensor into a low-impedance voltage signal that can then undergo further processing.

As well as fulfilling all these requirements, the new ICAM-B charge amplifier from Kistler is capable of far more – thanks to its unique combination of both analog and digital signal processing. The ICAM-B (or 5073B) is a multi-channel, high-bandwidth, universal charge amplifier with a wide and adjustable measuring range (± 20 to $\pm 1,000,000$ pC), integrated IIoT protocols (OPC UA and MQTT), and a web user interface for configuration and commissioning. The ICAM-B can be used wherever there is a need to measure mechanical quantities with piezoelectric sensors in quasi-static or dynamic processes: the vast range of applications includes micromechanics, medical technology, semiconductor manufacturing, and many more.

Comprehensive signal conditioning and processing functions

Depending on the selected version, the ICAM-B's rugged metal housing can be equipped with any number of input channels from one to four. Compared to its predecessor (5073A), the new 5073B comes with improved power management, an extended measuring range starting from ± 20 pC, and improved usability and connectivity.

The ICAM-B features six analog outputs, and each input channel can be flexibly routed to any of these outputs. Users can choose from many options for the output signal mode such as instant value, peak, RMS (root mean square), or integral value. For advanced signal processing, the ICAM-B offers programmable offsets as well as selectable low-pass filters and switchable high-pass filters. The new web user interface enables not only individual channel configuration, but also direct display of measurement values and visualization of the live signal versus time. The new 5073B device includes two virtual channels for real-time calculations (e.g. sum, weighted sum and subtraction) of different input signals.

Process control and condition monitoring

Condition monitoring involves the use of various parameters to assess and analyze the health of machinery or systems. Key parameters for such assessments include RMS and integral. The 5073B's D-sub connector offers pins that can be configured as digital outputs which send a signal to control systems if the user-defined threshold value for a process is exceeded. Machine monitoring based on defined process thresholds in the ICAM-B can help prevent unexpected breakdowns, reduce downtime, and extend machinery lifespans.

IIoT-ready with multiple protocols and remote access via Ethernet

The ICAM-B's new Ethernet interface enables remote access, remote configuration and monitoring, firmware updates, integration with control systems, data streaming, and a web-based user interface. Kistler's latest charge amplifier features two integrated IIoT protocols – OPC UA and MQTT – so multiple devices can be interconnected and remotely controlled. Moreover, data can be easily streamed from field level to higher-level systems and the cloud. The integrated REST API makes machine integration simple and enables connections to other systems.

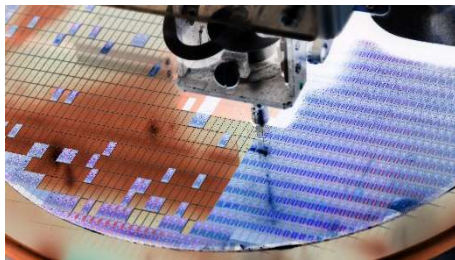
Full backwards compatibility – so direct replacement is simple

The new 5073B industrial charge amplifier comes with voltage (± 10 V) and current output (4 to 20 mA) variants. To guarantee backwards compatibility with the 5073A predecessor model, an optional RS232 interface is available on the side of the housing. This makes it easy to replace existing devices directly with the new model whenever necessary. As compared to the 5073A, the new 5073B offers the advantage of variants with three different sensor connector types to deliver protection classes IP50, IP65 and IP67, as appropriate to each customer's testing environment.

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



The new ICAM-B (5073B) from Kistler is an all-purpose industrial charge amplifier featuring a wide measuring range, a web-based user interface, comprehensive signal conditioning, and IIoT readiness.



Thanks to its extended measuring range starting at ± 20 pC, the new ICAM-B industrial charge amplifier from Kistler is capable of measuring small signals (e.g. force and pressure). This makes the device suitable for applications in micromechanics, medical technology and the semiconductor industry.

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