KISTLER

measure. analyze. innovate.

Complete solution – from sensor to data

KiDAQ – data acquisition and analysis

Modular DAQ system for versatile measurements and comprehensive data analysis

Creating a measurement solution with KiDAQ

With the integrated KiDAQ data acquisition system, Kistler offers engineers, researchers, measurement technicians and students everything they need for their measurement tasks: a reliable solution from one single source.

Sensors

Dynamic high-pressure measurements, accurate force measurements, and many other demanding test and measurement applications: no matter what the challenge, you can count on the extensive range of pressure, force, torque and acceleration sensors from Kistler to deliver reliable and precise values. Sensors from other manufacturers can also be connected to the KiDAQ hardware just as easily as Kistler's own products.

Measurement hardware

The KiDAQ data acquisition system from Kistler offers a wide choice of modules for a variety of measurands and sensors – ranging from simple voltage signals, measuring bridges and IEPE sensors to charge signals from piezoelectric sensors.
You are free to expand your test setup as you wish by adding other high-quality signal conditioning and data acquisition systems from the Kistler portfolio, such as LabAmp.

Data acquisition and analysis software

KiStudio Lab software makes it easy to configure your hardware components and perform your measurement tasks. The combination of KiStudio Lab and the comprehensive jBEAM Lab analysis tool gives you a host of visualization and analysis features as well as an automatic report generator to save valuable time on recurring tasks.

Connectivity with KiConnect

KiConnect is the connecting element inside the KiDAQ data acquisition system. Intelligent technology makes it simple to combine Kistler data acquisition devices into a logical measurement system and perform precise, time-synchronized measurements with the Precision Time Protocol (PTP).
- Multiple devices of the same or different types in one setup
- Distributed, time-synchronized measurements with PTP (IEEE 1588)

**Advantages of the KiDAQ data acquisition system**
- Benefit from the versatile modular hardware concept for applications in education, research, testing and qualification
- Create logical measurement systems with mixed hardware setups, including precise time synchronization with PTP thanks to Kistler's KiConnect technology
- Save time because the intuitive KiStudio Lab software makes it quick and easy to configure your measurement setups
- Gain better insights with the interactive analysis and visualization functions in jBEAM Lab

The KiStudio Lab **software** package with jBEAM combines easy configuration with comprehensive analysis.

**KiStudio Lab Software**

Other Kistler software
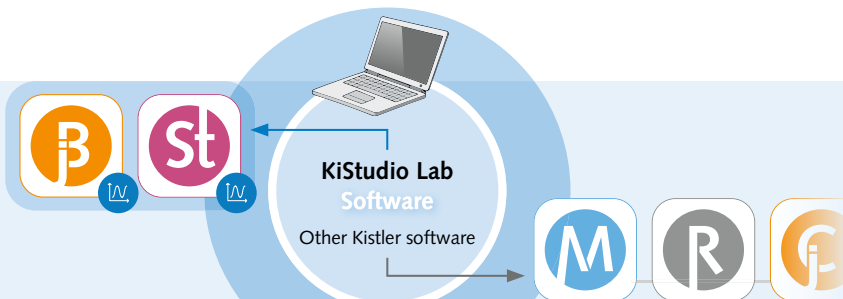
Further software is available for fast search and parallel analysis within huge amounts of measurement data.

The modular KiDAQ **hardware** can be configured flexibly with an application-specific selection of inputs.

KiDAQ Hardware

Other Kistler devices
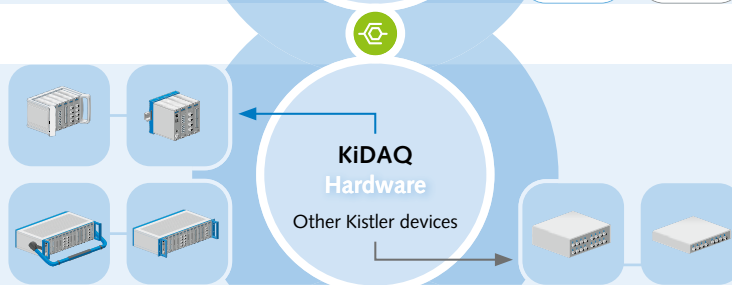
The system can be extended with other Kistler measurement devices through our KiConnect technology.

Pressure, force, torque or acceleration – Kistler offers a wide range of **sensors**.

Kistler Sensors Sensors

Third-party sensors

p   F

M   a

U/I   T

Digital
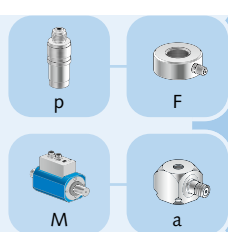
Sensors from other manufacturers complete the desired measurands.

The KiDAQ data acquisition system features a modular design, giving you the flexibility to expand your solution as you wish. And with Kistler's KiConnect technology, you are not limited to one hardware device: you can build high-channel systems with multiple devices or even mix different hardware types in one setup – that's what we call a 'logical measurement system'.

KiDAQ – the universal workhorse

Kistler offers a wide selection of measurement modules for KiDAQ systems, covering more than 20 different measurands. The modules are available in three different housing variants to ensure maximum flexibility for every measuring task.

• Choice of 19 different measurement modules for inputs such as voltage, current, resistance, temperature, strain gauges, and many more
• Universal modules with 2 or 4 analog inputs and sensor-specific modules with up to 8 inputs
• Available in three housing options: Rack, Portable and DIN Rail

LabAmp 5165A – the dynamic device

This flexible laboratory charge amplifier can be used wherever you need to measure dynamic signals of mechanical quantities with piezoelectric sensors, IEPE sensors (Piezotron) or sensors with voltage output.

• Purely dynamic piezoelectric measurements
• IEPE measurements
• Static and dynamic voltage measurements
• 1 or 4 universal inputs

LabAmp 5167A – the piezoelectric expert

Piezoelectric sensors produce an electric charge which is proportional to the load acting on the sensor. The amplifier converts this charge directly into digital values. The LabAmp 5167A can handle slow quasistatic signals as well as dynamic processes.

• Quasistatic and dynamic piezoelectric measurements
• 4 or 8 charge inputs

LabAmp 5165A   LabAmp 5167A
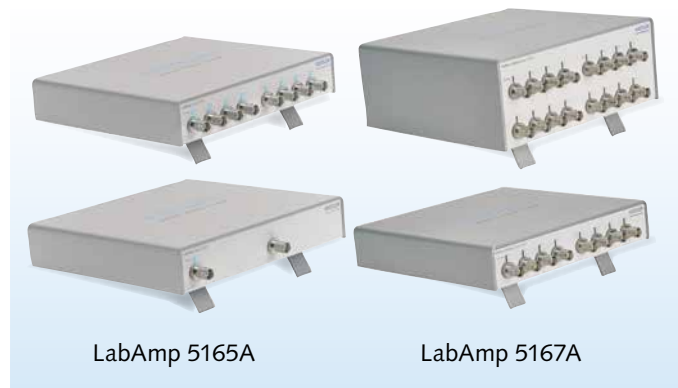
Easy channel setup thanks to clear user guidance and graphical hardware view

Lab Package: easy measurement setup and powerful analysis

KiStudio Lab: the complete software package from Kistler that makes it easier than ever before to edit and manage measurement tasks and projects. Included in the package: jBEAM Lab analysis software, with an almost infinite choice of features for processing and visualizing recorded measurement data.

Easy measuring chain setup
The KiStudio Lab user interface was developed and designed to meet the latest usability criteria, so occasional users can operate it just as efficiently as experienced measurement engineers. You can configure channels intuitively with the help of a graphical view of the measurement hardware, or in table view with the convenient multi-edit feature – a comfortable option for high channel counts.

Flexible dashboard for live view and controls
Use the dashboard to configure your graphs freely, so you can quickly interpret your measurement data and make targeted adjustments to the system or the influencing parameters you want to investigate. You can start and stop measurements and recordings either by manual control or with convenient triggering options.

Measurement data analysis
jBEAM Lab: professional software from Kistler for data analysis, visualization and report generation. Designed to operate with Big Data, jBEAM Lab supports numerical, audio, video and geographical data.

Advantages of KiStudio Lab
- Simple, user-friendly operation and clear measurement setup display – so you achieve your goals more quickly
- Distributed, scalable measurement setups with multiple measurement devices in a cohesive, logical measuring system
- Intuitive project management and simple data export for further processing with jBEAM Lab

The complete measurement and analysis software package: KiStudio Lab with jBEAM Lab

Import	Analysis	Visualization
Over 40 different data files formats	More than 100 extensive analysis functions	Report export & interactive visualization

Import	Analysis	Visualization
File import	Formula editor	Table view
File watcher	Statistics & classification	Flexible graphical views with layout editor
Data import from database	Signal filters & calculations	2D/3D-axis charts
Multimedia import (audio, picture, video)	Vibration analysis (FFT)	Data file export
Clipboard (copy-paste)	Bit calculations	Report generator
	Converters	

Advantages of jBEAM Lab
- Crystal-clear presentation with extensive visualization tools for faster and better data analysis
- Interactive analysis makes your work faster and more efficient
- Automated reports in various standard file formats save time on reporting

An efficient tool designed for engineers
- jBEAM Lab is a powerful tool that was specifically developed to visualize and analyze measurement data.
- Spreadsheet tools on the other hand are designed to analyze business data – but with measurement data, you will very soon reach the limitations of this type of software.
- Programming tools for data analysis also have their uses in scientific work, but they are not suitable for fast and efficient analysis of measurement data.
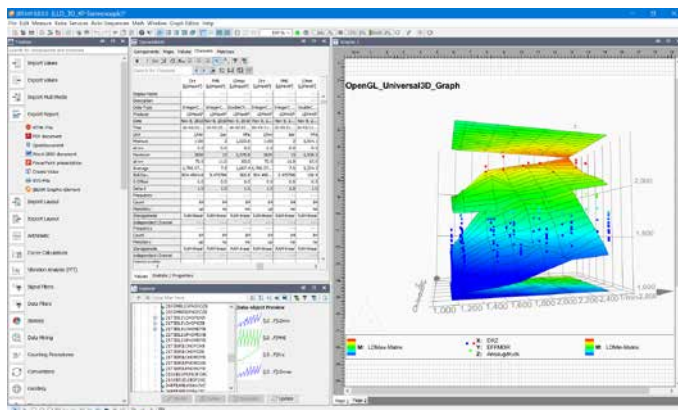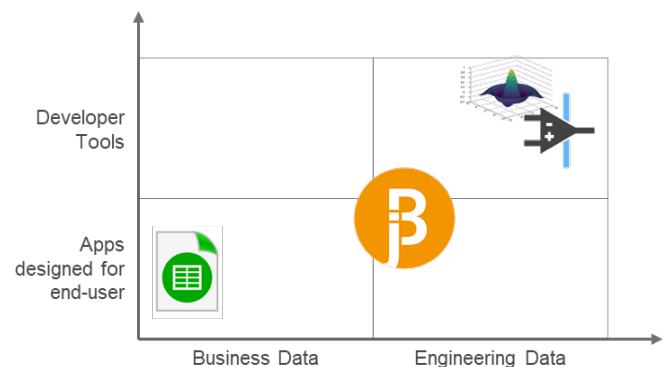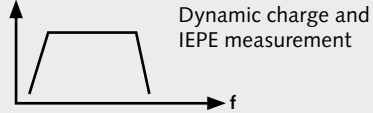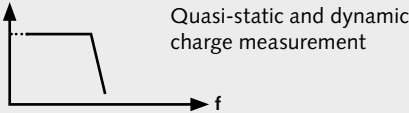
Interactive analysis
- Accomplish your analysis tasks faster and more efficiently
- Work dynamically with your test data
- Parameterize your calculations easily with interactive control elements (cursor, input field, knob, slider, etc.)
- Export the configured analysis as a template for future reporting
- Prepare measurement data for data science applications
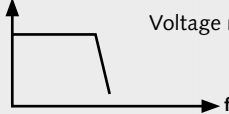
Automated reporting
- Create complete test reports with more than 500 pages
- Available formats include PDF, Word, PowerPoint, HTML and many more
- Use predefined templates for projects, page layouts (table of contents, header, footer, etc.), calculation groups, and graphic objects
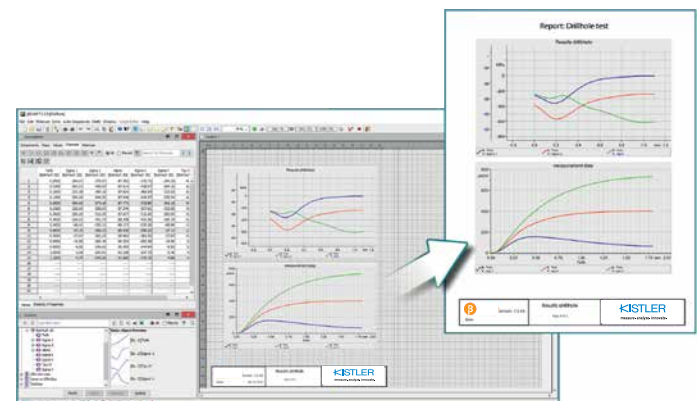
LabAmp types and measurands

LabAmp Type	5165A1	5165A4	5167A4	5167A8
Input channels	1	4	4	8
Output channels	1	4	4	8
Sampling rate per channel (S/s)	200 k	200 k	100 k	100 k
U Voltage	■	■		
IEPE	■	■		
Charge dynamic	■	■	■	■
Charge quasi-static			■	■

Voltage measurement

Dynamic charge and IEPE measurement

Quasi-static and dynamic charge measurement

KiDAQ housing options

KiDAQ Portable	KiDAQ DIN Rail	KiDAQ Rack
• Compact, robust housing for stationary and mobile measurements	• Standardized mechanical fastening for industrial environments (top-hat rail)	• Up to 13 measurement modules for a compact high channel count system
• Up to 13 measurement modules, individually selected for each application	• Any number of different measurement modules can be combined to create an application-specific data acquisition system	• Either in a standard 19″ housing for permanent installation on test benches –
• Battery operation possible		• Or in a convenient design including handles for flexible operation in the laboratory

KiDAQ measurement modules overview

Measurement module type	5501A	5502A	5505A	5506A	5507A	5509A	5512A	5514A	5517A	5518A	5521A	5522A	5525A	5526A	5528A	5529A	5531A	5534A	5535A
Analog input channels	2	4	8	8	8	4	4	8	8	2	8	4	4	4	4	4	-	-	-
Digital input channels	2	-	2	2	-	-	-	-	-	4	-	-	-	-	-	-	4	8	6
Sampling rate per channel (S/s)	100 k	20 k	20 k	20 k	20 k	100 k	100 k	20 k	20 k	20 k	100	10	20 k	100 k	100 k	100 k	-	-	-
Analog signals																			
Voltage	■	■	■ <10 V	■ <60 V	■		■	■			■ <80 mV								
Voltage (isolated 1.2 kV)														■	■	■			
Voltage (range up to 1.2 kV)															■	■			
Current	■	■	■		■										■				
Resistance	■	■										■							
Potentiometer	■	■																	
Pt100, Pt1000 (RTD)	■	■										■							
Thermocouples	■	■									■								
Thermocouples (isolated 1.2 kV)													■						
Strain gauges	■	■							■	■									
Inductive full and half bridges										■									
LVDT (Displacement)										■									
Piezoelectric sensors						■													
IEPE sensors (Piezotron)	■						■												
MEMS capacitive sensors (K-Beam)								■											
Piezoresistive pressure transmitters (PRT)					■														
Digital signals																			
Frequency																	■	■	■
Pulse width																	■	■	■
Counter signal																	■	■	■
Time																	■	■	■
Status	■		■	■			■			■							■	■	■
TEDS	■																		

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