

Product line for test and measurement applications including cutting force and ballistic

Pressure, force, acceleration, torque and more...

Piezoelectric (PE/IEPE) pressure sensors

- Wide measuring range
- Small sensor size
- Acceleration compensated
- Wide temperature range $-196 \dots 350 \text{ }^\circ\text{C}$
- Fast rise times $<0.4 \mu\text{s}$
- High natural frequencies up to 500 kHz



Type 601C
250 bar, PE
1.5 ... 250 bar, IEPE



Type 602A
250 bar, PE
3.5 ... 7 bar, IEPE



Type 603C
1,000 bar, PE
14 ... 1,000 bar, IEPE

Application areas: Compressors, pumps, shock tubes, rocket engines, hydraulic & pneumatic pulsations, acoustic events, cavitation tunnels, sloshing, slamming, airbag initiator & inflator testing, closed bomb, and more ...

Piezoresistive (PR) pressure sensors

- Static and dynamic pressures up to 2 kHz
- mV, V and mA output options available
- Wide temperature range $-55 \dots 150 \text{ }^\circ\text{C}$
- 300% proof pressure
- 0.1% FS stability per year
- 0.1% FS stability per year
- Hazardous area certified versions available
- Modular design & easy configurable transmitters: www.kistler.com/PRT



Type 4260A...
Absolute
1 ... 350 bar
and barometric



Type 4262A...
Relative
 $-1 \dots 350$ bar and
compound bidirectional



Type 4264A...
Differential
 $-1 \dots 10$ bar
uni- and bidirectional



Type 4080B(T)
Absolute
5 ... 250 bar
compact light

Application areas: Ground and flight test, leak testing, air conditioning, fuel/water/oil pumps & pressures, avionics & cabin conditioning, hydraulics, marine (depth-sensing), engine and powertrain test, on-vehicle test, and more ...

Ballistics (PE/IEPE) pressure sensors

- Linear over all ballistics measuring ranges
- Long service life and long-term stability
- Additional thermal protection shield available
- Insensitive to tightening torques and mounting conditions
- NATO Standard (Type 6215)
- Acceleration compensated



Type 6215
0 ... 6,000 bar
PE



Type 6213B
0 ... 10,000 bar
PE



Type 6217A
0 ... 2,000 bar
PE

Application areas: Interior ballistics, closed-bomb, gun and ammo testing, airbag initiator and inflator performance

Key: PE = Piezoelectric (charge mode) IEPE = Integrated Electronics Piezoelectric (voltage mode)

Single-axis (PE/IEPE) force sensors

- Direct force measurement
- Wide measuring range
- High rigidity, fast response
- Low profile in-situ installation
- High sensitivity
- High frequency



Types
9001A ... 9091B
0 ... 7.4 kN to
0 ... 1,200 kN
Ring force
transducer, PE



Types
9130B ... 9137B
0 ... 3 kN to
0 ... 80 kN
SlimLine, PE



Types
9712B5 ... 9712B5000
2 kN ... 22 kN
IEPE



Types
9203, 9207,
9215 & 9217
 $\pm 20 \text{ N} \dots \pm 500 \text{ N}$
Low forces, PE



Types
9301B ... 9371B
 $\pm 2.5 \text{ kN} \dots \pm 115 \text{ kN}$
Traction Compression
Load cell/
force link, PE



Types
9323A ... 9393A
0 ... 10 kN to
0 ... 700 kN
Compression
Load cell/force
link, PE

Application areas: Dynamic loads for aerospace and automotive platforms, thrust stands, impact testing, R&D/structural analysis, product acceptance/qualification test of systems, subsystems and components

Piezoelectric (PE) strain sensors

- Indirect force measurement
- High sensitivity
- Easy installation
- Excellent retro-fit solution



Type 9232A
 $\pm 600 \mu\epsilon$
surface



Type 9237B
 $\pm 800 \mu\epsilon$
surface



Type 9241C
 $-300 \dots 500 \mu\epsilon$
transverse



Type 9243
 $\pm 1500 \mu\epsilon$
longitudinal



Type 9247A
 $\pm 1400 \mu\epsilon$
mini-longitudinal

Application areas: R&D and test of mechanical systems where direct force measurement is costly or impractical

Multi-axis (PE) force moment sensors/links

- Wide measuring range
- High rigidity, high natural frequency
- Low crosstalk
- High sensitivity
- Compact design
- Fx, Fy, Fz
- Mx, My, Mz (Type 9306A)



Types 9017C ... 9077C
3 axis force sensor
Fx, Fy: $\pm 1.5 \text{ kN} \dots \pm 7.5 \text{ kN}$
Fz: $\pm 3 \text{ kN} \dots \pm 150 \text{ kN}$



Types 9317C ... 9377C
3 axis force links
Fx, Fy: $\pm 1.5 \text{ kN} \dots \pm 75 \text{ kN}$
Fz: $\pm 3 \text{ kN} \dots \pm 150 \text{ kN}$



Types 9345B/9365B
2 axis force/moment sensor
Fz: $-20 \dots 20 \text{ kN}$
Mz: $-200 \dots 200 \text{ N.m}$



Type 9306A
6 axis force/moment sensor
Fx, Fy: $\pm 5 \text{ kN}$
Fz: $-5 \dots 10 \text{ kN}$
Mx, My, Mz: $\pm 200 \text{ N.m}$

Application areas: Force limited vibration, dynamic loads for aerospace and automotive platforms, thrust stands, impact testing, R&D/structural analysis, product acceptance/qualification test of systems, subsystems and components

Multi-axis/moment (PE) force dynamometers

- Direct force measurement
- Moment calculation
- Wide measuring range
- High rigidity, fast response
- Low profile in-situ installation
- High sensitivity
- Micro vibration ceramic options



Type 9255C
Fx, Fy: $\pm 30 \text{ kN}$
Fz: $-10 \dots 60 \text{ kN}$



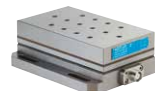
Type 9139AA
Fx, Fy, Fz: $\pm 30 \text{ kN}$



Type Z21492 (ceramic)
Fx, Fy, Fz: $\pm 112 \text{ lbf}$
Mx, My, Mz: $\pm 15 \text{ ft.lbf}$



Type 9119AA2
Fx, Fy, Fz: $\pm 4 \text{ kN}$



Type 9257B
Fy, Fz: $\pm 5 \text{ kN}$
Fz: $-5 \dots 10 \text{ kN}$



Type 9109AA
Fx, Fy, Fz: $\pm 500 \text{ N}$
Mz: $\pm 50 \text{ Nm}$

Application areas: Micro vib. to cutting force, dynamic loads for aerospace and automotive platforms, thrust stands, impact testing, R&D/structural analysis, product acceptance/qualification test of systems, subsystems and components

PE single-axis/triaxial accelerometers

- High temperatures up to 250 °C
- Temperature as low as -195 °C
- Wide measuring range
- Hermetic, stainless steel (except Type 8278A)
- Ground isolated mounts with pad
- Wide frequency range
- Intrinsically safe rated (Type 8205B)



Type 8278A ±500 g Types 8274A and 8776B ±2,000 g Type 8202A ±2,000 g Type 8044A ±30,000 g Type 8203A ±1,000 g Type 8205B ±100 g Type 8290A ±1,000 g triaxial

Application areas: Automotive engine compartment, environmental testing (control, response), power generation, product acceptance/qualification test of systems, subsystems and components

IEPE single-axis accelerometers

- Temperature range up to -195 °C ... 165 °C
- PiezoStar (Types 8715, 8703/05, 8712) ultra-low temperature errors
- High output, low noise, low mass
- Hermetic, stainless steel and titanium versions
- Wide frequency range
- Impulse hammer; modal test
- Waterproof capability IP68 up to 10 bars (Types 8774B, 8776B)



Types 8702B/8704B ±25 ... ±5,000 g Types 8703A/8705A ±50 ... ±250 g Type 8715A/B ±250 g ... ±5,000 g Type 8730A ±500 g
Types 8742A/8743A ±5,000 ... ±100,000 g Types 8774B/8776B ±50 ... ±500 g Type 8714B ±100 g & ±500 g Type 8778A ±50 ... ±500 g Type 8728A ±500 g

Application areas: Automotive engine compartment, environmental testing (control, response), structural analysis, product acceptance/qualification test of systems, subsystems and components, cryogenic vibration testing

IEPE triaxial accelerometers

- Temperature range up to -195 °C ... 165 °C
- PiezoStar (Types 8765, 8766) ultra-low temperature errors
- High output, low noise, low mass for structural analysis (Type 8688A)
- Hermetic, ground isolated mounts with pad
- Wide frequency range



Type 8763B ±50 ... ±2,000 g Type 8766A ±50 ... ±1,000 g Type 8764B ±50 ... ±2,000 g Type 8765A ±250 g Types 8793A/8794A ±500 g

Application areas: Automotive engine compartment, environmental testing (control, response), power generation, product acceptance/qualification test of systems, subsystems and components, drop testing, aerospace flight test and ground verification test (GVT) and structural analysis, cryogenic vibration testing

MEMS capacitive single/triaxial accelerometers

- Temperature range $-55\text{ °C} \dots 120\text{ °C}$
- Low noise/excellent thermal stability
- Frequency $0 \dots 2,000\text{ Hz}$ ($\pm 5\%$)
 - Single-ended, differential, bipolar output options
 - Ranges from $\pm 2\text{ g} \dots \pm 200\text{ g}$
 - Linearity: $\leq 0.3\%$



Type 8316A
 $\pm 2 \dots \pm 200\text{ g}$
integral cable
options



Type 8396A
 $\pm 2 \dots \pm 200\text{ g}$
integral cable
options

Application areas: Automotive ride quality/durability, seismic, civil engineering structures, aerospace flight test and ground verification test (GVT), aerospace structural analysis, active control, rail vibration, tilt, micro-vibration

Acoustic emission sensors

- Temperature range $-55\text{ °C} \dots 165\text{ °C}$
- Hermetically sealed and case isolated
- Braided or non-braided integral cable available
- IS/ATEX options available



Type 8152C
 $50 \dots 900\text{ kHz}$
Acoustic Emission Sensor



Type 5125C
Acoustic Emission
Coupler



Type 5252A
Wideband
Zener Barriers

Application areas: Plastic deformation of materials, crack formation, fracture, friction and fatigue; preventative maintenance

Rotating torque sensors

- Strain gage system
- Integrated electronics
- Non-contact signal transmission
- Optional rotational angle or speed measurement



Type 4501A
 $2 \dots 1,000\text{ N.m}$



Type 4502A
 $0.5 \dots 1,000\text{ N.m}$



Type 4520A
 $1 \dots 1,000\text{ Nm}$



Type 4503B
 $0.2 \dots 5,000\text{ Nm}$
Dual range option
Analog or digital output



Type 4551A
 $50 \dots 5,000\text{ Nm}$
Dual range option
Analog or digital output

Application areas: R&D and testing of engine and electric motors, calibration, product performance evaluation and testing

Ultra high temperature sensors for acceleration and pressure

- Operating temperature up to 700 °C for application close to the combustion
- Excellent long-term stability
- High sensitivity
- Not pyroelectric and no popcorn effect
- Tailored, customized measuring chains available



Type 8207A/8209A



Type 8211A



Type 6021A/6023A

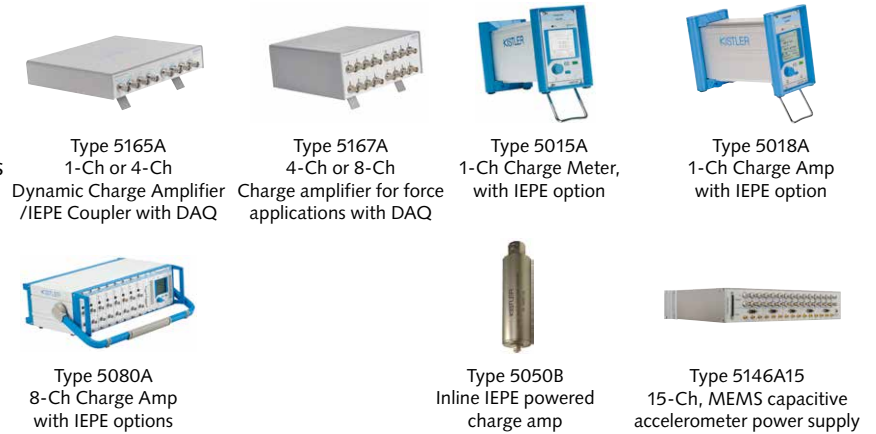


Type 6025A

Application areas: R&D and testing of engine and electric motors, calibration, product performance evaluation and testing

Signal conditioning

- Quasi-static and high frequency dynamic measurement charge amplifiers
- IEPE power supplies, TEDS option, and inline charge amps
- Built-in peak hold and statistical capture options
- Optional digital control, gain, filtering options
- MEMS capacitive integrated power supply and junction box for signal processing
- Most recent designs integrating Data Acquisition a (Types 5165A ... 5167A)

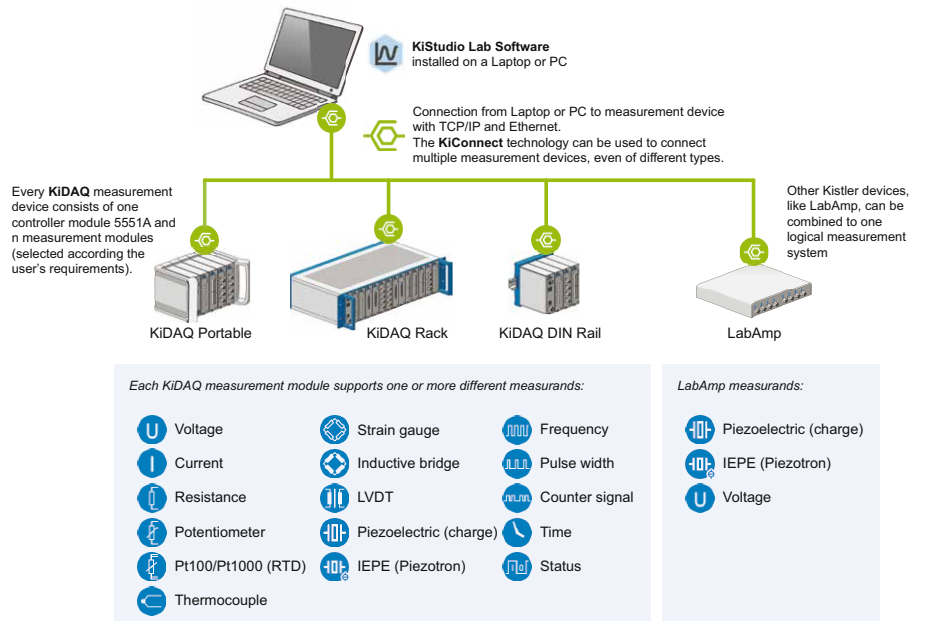


Application areas: Automotive engine compartment, environmental testing (control, response), power generation, product acceptance/qualification test of systems, subsystems and components, cryogenic vibration testing

Data acquisition

Benefits of KiDAQ data acquisition:

- Simple to operate software
- Fast and safe test set-up
- Improved measuring certainty thanks to transparency and know-how across the entire measuring chain
- Precise time synchronization across all measurement devices
- Cloud-based platform enables future expansions, including those of partner companies



Application areas: Aerospace, shipbuilding and marine technology, underground construction and mining, energy technology and environmental engineering, oil and gas, semiconductors and electronics, automotive engineering, medical technology, university research, paper and cellulose, foods and beverages, chemical and pharmaceutical industries, mechanical engineering, transportation and traffic, white goods, pumps and coolers

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