



Research and Development Sensors and Instrumentation

Shock & Vibration, Acoustics, Pressure and Force

The Test & Measurement Division of PCB® manufactures the largest selection of sensors and sensor accessory products worldwide. Our product lines include sensors for the measurement of acceleration, acoustics, force, load, pressure, shock, strain, torque, and vibration. All of which are backed by our Total Customer Satisfaction guarantee.

Our Products are the first choice of engineers and scientists at leading businesses, research institutions, and independent laboratories around the world. In a global marketplace driven by innovation and development, PCB® has a sensor for every stage of product development including R&D, Production Variation Control, and Process Monitoring and Protection.

The Test & Measurement Division is the primary sensor resource for major industries including but not limited to:

- Acoustic Architectural Design
- Appliance
- Business Machine
- Chemical
- Environmental Testing
- Food & Beverage
- Industrial Hygiene
- Injection Molding
- Machine Tool
- Medical
- Metal, Glass, Plastic & Material Forming
- Pharmaceutical
- Package Design & Testing
- Power Tool
- Production/Process Equipment
- Quality Assurance
- Semiconductor





Piezoelectric Accelerometers

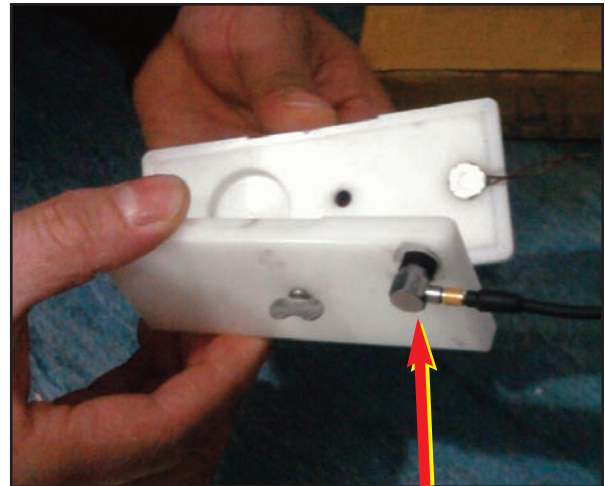
PCB piezoelectric accelerometers offer tremendous versatility for shock and vibration measurements. Units are available with measurement capabilities down to $1\mu\text{g}$, (for making low level, low frequency vibration measurements) and up to $100,000\text{g's}$, (for measuring short duration transient shock events).

Product Highlights

- No moving parts provides durability
- Rigidity imparts high frequency range
- Available in both Single axis and Triaxial configurations
- Most units hermetically sealed in a titanium housing
- Mount by screw, stud, or adhesive

Applications

- Product Qualification Studies
- Vibration Control
- Quality Assurance (End of Line Testing)
- Package Drop Testing
- Structural Vibration Testing
- Environmental Testing
- Floor Vibration Monitoring
- Simulated Pyroshock Testing



Photos Courtesy of BaKo Co., Ltd.

Testing of Linear Motors used in Cell Phones



352A21

- +/- 500 g range
- Low 0.6 gram mass
- Low 0.14" height



352C33

- +/- 50 g range
- Low 0.1 mg resolution
- 0.5 to 10,000 Hz. Frequency range



356A01

- +/- 1000 g range
- Triaxial Configuration
- Low 1.0 gram mass



350C04

- 1 mV/g, +/- 5k g range
- Built-in Filtering
- Shock, ceramic-shear, ICP® accelerometer



393B05

- +/- 0.5 g range
- High 10 V/g sensitivity
- Low 4 μg resolution

Dynamic Force Sensors

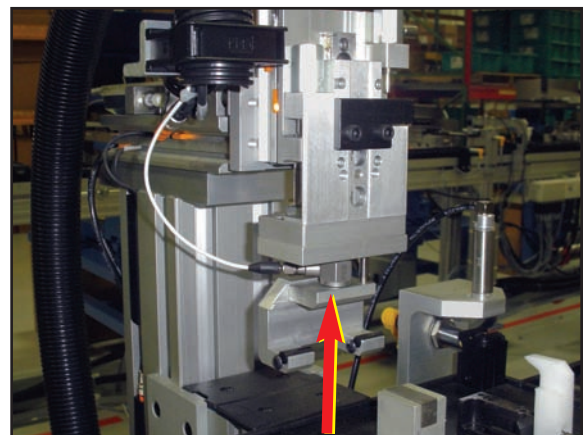
Quartz, piezoelectric force sensors are durable measurement devices which possess exceptional characteristics for the measurement of dynamic force events. Typical measurements include dynamic and quasi-static forces as encountered during actuation, compression, impact, impulse, reaction, and tension.

Product Highlights

- Rugged and durable
- High Stiffness
- Very Repeatable
- Wide Dynamic Range
- Fast Rise Time
- High Useable Frequency Range

Applications

- Modal Analysis
- Biomechanics
- Drop Testing
- Component Fatigue Testing
- Impact & Repetitive Applications
- Material Studies



Assembly Force Monitoring Using 208C Series Force Sensor



208C Series

- Ranges 10 to 5k lbs
- Tension / Compression
- 5/8" H x 5/8" D
- General Purpose



201B Series

- Ranges 10 to 5k lbs
- Low Profile Design
- High Resonant Freq.
- 0.31" H x 0.65" D



260 Series

- 3-Axis, Fx, Fy, Fz
- ICP®
- Mtg Hardware Incl
- Ranges 1k to 10k lbs



200B Series

- Ranges 10 to 5k lbs
- Compression Only
- Impact Applications
- 0.36" H x 0.65" D



200C20

- 20k lb FS Capacity
- Impact Cap Inc'l
- 1/4-28 (F) Mtg. Thd.
- S.S. Construction



Precision Microphones

PCB offers a wide variety of products to measure sound pressure or noise. These range from our value oriented 130E series of "Array" electret microphones and preamplifiers to our top of the line high accuracy 377 and 378 series of IEC compliant microphones and preamplifiers.

Product Highlights

- Modern Prepolarized (0V) Designs
- Traditional Externally Polarized (200V) Designs
- Free Field, Random Incidence and Pressure Response Designs
- Wide Dynamic Range 10-178 dB
- Wide Temperature Range
- IEC 61094 Compliant Models
- Class 1 and Type 1 Compliant
- A2LA and ILAC Accredited
- PTB and NIST Traceable

Applications

- Sound Power Testing
- Engine Noise Analysis
- Sound Quality
- Sound Intensity
- Material Absorption Testing
- Beamforming
- Computer Disk Drive Noise
- Near Field Holography
- Noise, Vibration, Harshness (NVH) Testing
- Noise Source Identification



Noise Source Identification for Noise Reduction



378B02

- 1/2" Prepolarized
- Free Field
- Best Seller for measurements in open areas and anechoic chambers



378B20

- 1/2" Prepolarized
- Random Incidence
- For measuring sound and its reflections



378C10

- 1/4" Prepolarized
- Pressure Field
- High amplitudes and high frequency



130E20

- Cost effective
- Free Field
- For large channel count systems

**3rd Party
Competitive
Test Results**

Call Today

800-828-8840

www.pcb.com/buymics



■ **HT378B02** High Temperature applications model available. (120°C)

Dynamic Pressure Sensors

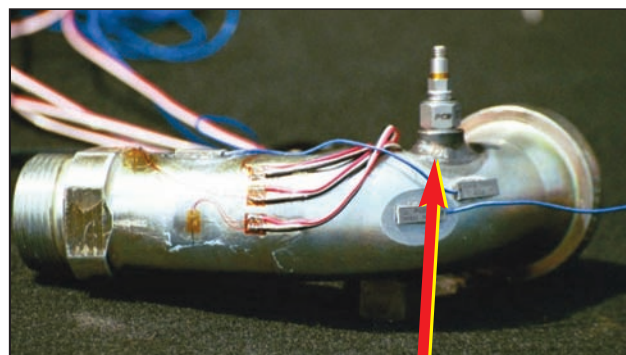
PCB offers a wide variety of pressure sensors to satisfy a multitude of dynamic measurement requirements. Whether it's a pharmaceutical injection design application, a component test, or a pulsation study of a hydraulic pump, we can help with sensors, that are off-the-shelf or custom designed for the specific application.

Product Highlights

- Fast, micro-second response time
- Resonant frequency to 500 kHz
- Measure small pressure changes under large static pressures
- Operating temperature range from -320 to +750 °F (-196 to +399 °C)
- Rugged solid state construction

Applications

- Fluid Borne Noise
- Pulsations, surges, cavitations
- Combustion Studies
- Explosive Component Testing
- Hydraulic & Pneumatics Systems
- High Intensity Sound



Automotive Air Bag Propellant Testing using 102 Series ICP® Pressure Sensor



102 Series

- Ranges 50 to 10 kpsi
- Ground Isolated
- Easy Installation
- Rise time of $\leq 1 \mu\text{sec}$



112 Series

- Acceleration Compensation
- $\geq 250 \text{ kHz}$ Res. Freq.
- ICP®
- High Sensitivity



113 Series

- $\geq 500 \text{ kHz}$ Res. Freq.
- Rise time of $\leq 1 \mu\text{sec}$
- Frequency Tailored
- Acceleration Compensation



106 Series

- Hermetic Acoustic
- Ranges 1 to 8.3 psi
- Acceleration Compensation
- ICP®



116 Series

- 100 psi FS Range
- -400 °F to +650 °F
- 6 pC/psi
- Hermetically Sealed



Electronics

PCB offers a wide variety of signal conditioners for use with our sensor products. These range from single to multichannel units that are battery or line-powered.

Highlights

- Single and multichannel
- Battery, DC, line-powered
- Gain and filter options
- ICP®, charge, MEMS sensor inputs



480C02

- ICP® input
- 1-channel
- Battery-powered



482C54

- ICP® / charge inputs
- 4-channel version
- Line-powered
- Selectable gain



ICP® signal conditioners for 64-channel product modal test

483C40

- ICP® / charge inputs
- 8-channel
- Selectable gain
- Selectable filtering

Cables

PCB also offers multiple cable configurations to interface with our sensors and signal conditioners, and data acquisition equipment.

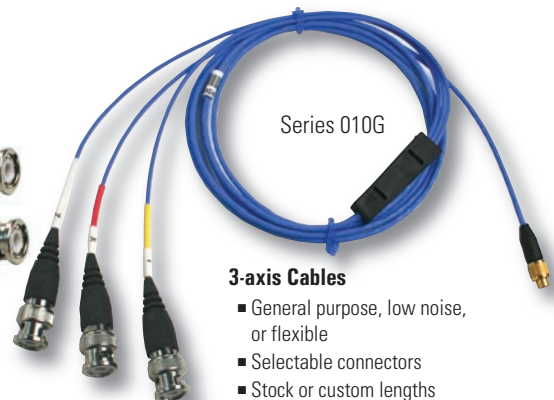
Highlights

- Single, triaxial and multi-conductor
- General purpose and low noise
- Flexible and ruggedized options



1-axis Cables

- General purpose or low noise
- Coaxial or shield pair
- Stock or custom lengths



3-axis Cables

- General purpose, low noise, or flexible
- Selectable connectors
- Stock or custom lengths



Our Platinum Products Program ensures fast delivery of over 10,000 sensors that are covered by a lifetime warranty. You will find Platinum Products indicated with the "Platinum Shield" icon.



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AS9100 CERTIFIED ■ ISO 9001 CERTIFIED ■ A2LA ACCREDITED to ISO 17025

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PCB Piezotronics Test & Measurement Products support the application of traditional sensor technologies of acoustics, pressure, force, load, strain, torque, acceleration, shock, vibration, electronics and signal conditioning within product design and development, consumer product testing, quality assurance, civil structure monitoring, research and development, education and engineering application areas. PCB products are backed by our **Total Customer Satisfaction** policy, which guarantees your satisfaction.

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