Measuring dynamic forces with piezoelectric quartz sensors permits accurate capture of fast, transient forces associated with manufacturing processes and product testing. Unlike strain gage sensors that are suitable for slow changing or static loads, quartz dynamic force sensors possess the endurance to survive, and the response necessary, to quickly and accurately follow fast-rising, short-duration crimping, stamping, punching, and impact events.

In addition to the wide array of sensors that accommodate a multitude of measurement tasks, a comprehensive assortment of signal conditioning equipment is offered to complete the measurement chain. When complemented with today’s powerful data acquisition equipment and control software, creation of a complete, automated monitoring system is easily achievable.

All sensors are designed and manufactured in an ISO 9001 certified facility and provided with A2LA accredited calibration with traceability to N.I.S.T.

As with all equipment from PCB®, these sensors are complemented with toll-free applications assistance, 24-hour customer service, and are backed by a no risk policy that guarantees satisfaction or your money refunded.
When weighing or measuring load, request information on our complete line of strain gage load cells for general purpose and fatigue-rated use.

Please consult factory to discuss your particular dynamic force measurement application and to request certified documents prior to designing mounting hardware.

**Typical Appearance**

<table>
<thead>
<tr>
<th>Style</th>
<th>General Purpose</th>
<th>Ring</th>
<th>Link</th>
<th>Impact</th>
<th>Three Component Rings</th>
<th>Strain</th>
<th>Penetration</th>
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<tbody>
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**Series / Models**

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</thead>
<tbody>
<tr>
<td>10 lb to 5000 lb Compression</td>
<td>45 N to 22k N Compression</td>
<td>10 lb to 100k lb Compression</td>
<td>45 N to 450k N Compression</td>
<td>10 lb to 50k lb Compression</td>
<td>45 N to 220k N Compression</td>
<td>10 lb to 50k lb</td>
<td>45 N to 2200 N Tension</td>
<td>10 lb to 50k lb Compression</td>
<td>45 N to 220k N Compression</td>
<td>50 µt to 300 µt</td>
<td></td>
</tr>
</tbody>
</table>

**Capacities**

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<tr>
<th>Style</th>
<th>General Purpose</th>
<th>Ring</th>
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**Applications**

- Tensile Testing
- Fatigue Testing
- Drop and Impact Testing
- Material Testing
- Mechanical Impedance
- Biomechanics
- Modal Analysis Force Input

**Mounting**

- 10-32 Tapped Holes
- Supplied Mounting Studs
- Supplied Impact Cap

**Features**

- Stainless Steel Construction
- Hermetically Sealed
- Flexible Mounting
- Low Deflection
- Compact
- ICP® and Charge Output Models
- Axial or Radial Connector Models

**Performance**

- Amplitude Linearity: 1% FS
- Upper Freq. Limit: 30k Hz

**ICP® Sensor System**

- Standard Sensor Cable
- ICP® Force Sensor

**Charge Output Sensor System**

- Low Noise Sensor Cable
- Charge Amplifier

**Typical Measurement Systems for Dynamic Force Sensors**

When weighing or measuring load, request information on our complete line of strain gage load cells for general purpose and fatigue-rated use.
Series 484 Line-Powered, DC Coupled, ICP® Sensor Signal Conditioners

Condition ICP® sensors and provide a DC coupled signal path for long duration, quasi-static measurements.
- Selectable AC or DC coupled signal path
- Versions offering gain ×1, ×10, ×100
- Versions offering clamped zero output for applications involving repetitive pulse inputs
- Convenient, line-powered, benchtop styles
- Supports calibration requirements as well as punching, crimping, and stamping operations

Series 421A10 Industrial Charge Amplifiers

Condition charge output piezoelectric sensors in demanding, harsh environments.
- Choice of 1, 2, or 3 channels
- Rugged, surface mountable, sealed aluminum enclosures
- Three-user, selectable input ranges for each channel
- Electronic reset capability
- Long discharge time constant for quasi-static and low frequency measurements

Series 440 Modular Signal Conditioners

Mix and match modules into a variety of chassis to achieve the functions and number of channels desired.
- Modules for conditioning ICP® and charge output sensors
- AC or DC coupled options
- Expands as needs grow
- Line or battery powered

Series 480 Battery Powered, ICP® Sensor Signal Conditioners

For portable measurement and testing applications.
- Unity or variable gain versions
- Powered by standard 9 VDC batteries
- Rechargeable option
- AC power adaptor option

The Force/Torque Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of piezoelectric and strain gage force sensors, load cells, and torque sensors for a wide range of research, test, measurement, monitoring, and control requirements. This product focus, coupled with the strengths and resources of PCB, permits the Force/Torque Division to offer exceptional customer service, 24-hour technical assistance, and a Total Customer Satisfaction guarantee.

Visit www.pcb.com to locate your nearest sales office