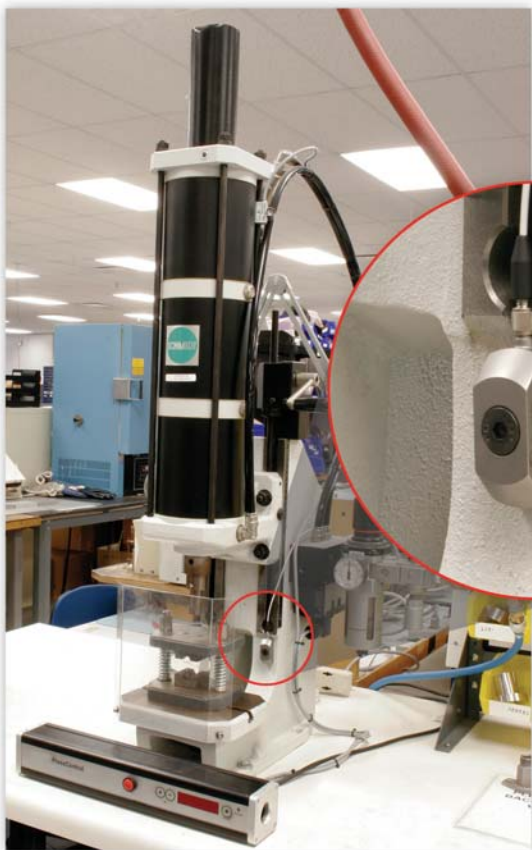


DO YOUR CUSTOMERS DEMAND ZERO DEFECTS?

Simple Assembly Force Monitoring System

- Monitors Force During Manufacturing Processes
- Avoids Damage & Detects Tool Wear
- Monitors Process Deviations
- Helps Ensure Quality & Zero Defects
- Installs easily on machines with a single screw



**A Series M240 Strain Sensor
Monitors Press-fit Forces to
Ensure Quality End Products**

Simple, ready-to-use monitoring systems that use piezoelectric quartz ICP® strain sensors and signal conditioners are ideal for product quality assurance applications that require the measurement of repetitive cycles. ICP strain sensors feature high stiffness, sensitivity stability, repeatability, high resolution, extremely long life, and robust packaging for harsh industrial environments.

Proper assembly force is vital to the strength of a formed metal part. An assembly force that is too low results in poor mechanical strength of the joint. A force that is too high causes excessive deformation, and can damage or reduce the fatigue life of a component. Processes such as clinching, circuit board assembly, orbital forming, press-fit, riveting, staking, and other assembly operations may be monitored in-process to determine whether the joint has been properly manufactured.

Strain sensor signals may also be used to protect machinery from excessive forces, trend tool wear, capture process deviations, and document the process to help ensure delivery of high quality parts with zero defects.

As with all PCB® instrumentation, these products 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.

 **PCB PIEZOTRONICS**^{INC.}
FORCE / TORQUE DIVISION

Total Customer Satisfaction Guaranteed



Specifications

ICP® Strain Sensors			
Model	M240A01	M240A02	M240A03
Performance			
Sensitivity (± 20%)	10 mV/με	50 mV/με	100 mV/με
Measurement Range	300 pk με	100 pk με	50 pk με
Low Frequency Range (-5%)	0.004 Hz	0.004 Hz	0.004 Hz
Broadband Resolution (1 to 10,000 Hz)	0.001 με	0.0002 με	0.0001 με
Environmental			
Temperature Range (Operating)	-65 to +250 °F (-54 to +121 °C)		
Electrical			
Output Bias Voltage	8 to 14 VDC		
Discharge Time Constant	≥ 150 sec		
Mechanical			
Sensing Element	Quartz		
Housing Material	Stainless Steel		
Electrical Connector	10-32 Coaxial Jack		
Sealing	Epoxy		
Mounting Torque	7.38 ft-lb (10 N-m)		
Size (Width x Length x Height)	0.67 x 1.81 x 0.6 in (17 x 46 x 15.2 mm)		
Supplied Accessories			
Model M081A100 M6 x 1.00 flathead screw			
Optional Versions (specify with prefix letter shown)			
J - Ground Isolated			



Series M240 ICP® Strain Sensors

ICP® Sensor Signal Conditioner	
Model	410A01
Performance	
Channels	1
Output Voltage (Instantaneous)	+/- 10 V
Output Voltage (Peak)	0 to 10 V
High Frequency Response	10 kHz
Low Frequency Response, AC coupled (-5%)	0.5 Hz
Low Frequency Response, DC coupled	0 Hz
Voltage Gain (Incremental Steps)	x0.5, x1, x2, x4, x8, x10, x16, x20
Environmental	
Temperature Range (Operating)	-60 to +110 °F (+15 to +45 °C)
Electrical	
Power Required (± 10%)	24 VDC
Current Draw	100 mA
Broadband Electrical Noise (1 Hz to 10 kHz)	20 μV rms
Peak Hold Reset	Solid State Relay
Discharge Time Constant (AC coupled)	1 sec
Mechanical	
Size (Width x Length x Height) inches (mm)	3.58 x 4.41 x 0.91 (91 x 112 x 23)
Mounting	DIN Rail
Electrical Connector (Sensor Input)	SMA
Electrical Connection (Analog Output, Peak Output, Power, Ground)	Removable Screw terminals



Model 410A01 ICP® Sensor Signal Conditioner



3425 Walden Avenue, Depew, NY 14043-2495 USA
Force / Torque Division toll free 888-684-0004
24-hour SensorLine™ 716-684-0001
Fax 716-684-8877 E-mail force@pcb.com
Web site www.pcb.com

ISO 9001:2000 CERTIFIED

A2LA ACCREDITED to ISO 17025

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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.

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