

Photo Courtesy of Siemens and Belgian Defense

SERIES 740XXX

REUSEABLE PIEZOELECTRIC ICP® STRAIN SENSOR

- Frequency response from 0.5 Hz to 100 kHz
- ICP® amplified output for low noise operation over long cable lengths
- Reuseable mounting with super glue
- Integral cable, no soldering required
- Low mass of 0.5 grams

TYPICAL APPLICATIONS

- Ground Vibration Testing
- Modal Analysis
- Transfer Path Analysis
- Active Vibration Control



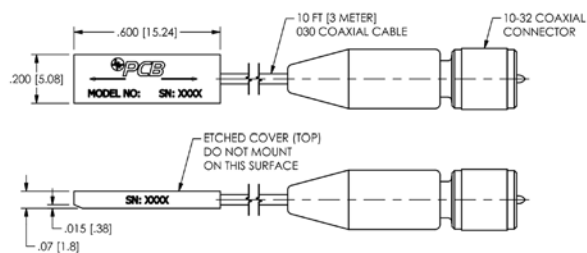
FOR DYNAMIC TESTING OF AIRCRAFT, DEFENSE VEHICLES AND COMPONENTS

Re-usable ICP® Piezoelectric strain sensors can be used in modal analysis to assess structural integrity of aircraft during ground vibration testing and flight testing to determine high stress levels. They may also be used for measurement of strain-displacement relationships and load predictions.

Often used to supplement accelerometers, the small size of Series 740 strain sensors minimizes interference with aerodynamic properties of aircraft for flight test measurements. For applications where low strain levels occur, series 740 piezoelectric ICP® strain sensors generate output ten thousand times larger than the output of a resistive strain gauge. Its high sensitivity provides up to ± 5 volts output at ± 100 micro-strain.

The sensor mounts fast and easy to painted metals, composites, plastics and other materials in the field with gel-type super glue, and may be re-used multiple times or reapplied if alignment is not correct on the first application. Removal is simplified with a debonding agent and supplied removal tool. The strain sensor is also supplied with a calibration certificate.

SPECIFICATIONS		
Model Number	740B02	740M04
Performance		
Sensitivity ($\pm 20\%$)	50 mV/ μE	5 mV/ μE
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Measurement Range	100 pE μE	900 pE μE
Frequency Range	0.5-100000 Hz	0.5-100000 Hz
Broadband Resolution	0.6 nE	5.0 nE
Non-Linearity	$\leq 1\%$	$\leq 1.5\%$
Transverse Sensitivity	$\leq 5\%$	$\leq 5\%$
Environmental		
Overload Limit (Shock)	± 10000 g pk	± 10000 g pk
	± 98000 m/s ² pk	± 98000 m/s ² pk
Temperature Range	-65 to +250 °F	-65 to +250 °F
	-53 to +121 °C	-53 to +121 °C
Acceleration Sensitivity	0.001 $\mu\text{E/g}$	0.001 $\mu\text{E/g}$
Electrical		
Excitation Voltage	20-30 VDC	20-30 VDC
Constant Current Excitation	2-20 mA	2-20 mA
Output Impedance	<100 Ohm	<100 Ohm
Output Bias Voltage	8-14 VDC	8-14 VDC
Discharge Time Constant	1-3 sec	1-3 sec
Spectral Noise (1 Hz)	210 pE/ $\sqrt{\text{Hz}}$	1900 pE/ $\sqrt{\text{Hz}}$
Spectral Noise (10 Hz)	70 pE/ $\sqrt{\text{Hz}}$	600 pE/ $\sqrt{\text{Hz}}$
Spectral Noise (100 Hz)	20 pE/ $\sqrt{\text{Hz}}$	200 pE/ $\sqrt{\text{Hz}}$
Spectral Noise (1 kHz)	5 pE/ $\sqrt{\text{Hz}}$	60 pE/ $\sqrt{\text{Hz}}$
Spectral Noise (10 kHz)	1 pE/ $\sqrt{\text{Hz}}$	15 pE/ $\sqrt{\text{Hz}}$
Physical		
Sensing Element	Quartz	Quartz
Housing Material	Titanium	Titanium
Sealing	Epoxy	Epoxy
Size - W x L x H	0.2 x 0.6 x 0.07 in	0.2 x 0.6 x 0.07 in
Weight	0.5 gm	0.5 gm
Electrical Connector	10-32 Plug	10-32 Plug
Electrical Connection Position	Side	Side
Mounting	Adhesive	Adhesive
Cable Length	10 ft	10 ft
	3 m	3 m
Cable Type	030 Coaxial	030 Coaxial
Accessories		
Removal Tool	039A07 (Supplied)	039A07
Quick Bonding Gel	080A90 (Supplied)	080A90
Piezoelectric Strain Sensor Calibration Certificate	ACS-15 (Supplied)	ACS-15



Model 039A07

Removable Tool



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PCB Piezotronics, Inc. is a designer and manufacturer of microphones, vibration, pressure, force, torque, load, and strain sensors, as well as the pioneer of ICP® technology used by design engineers and predictive maintenance professionals worldwide for test, measurement, monitoring, and control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, OEM applications, and more. With a worldwide customer support team, 24-hour SensorLineSM, and a global distribution network, PCB® is committed to Total Customer Satisfaction. Visit www.pcb.com for more information. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corporation. Additional information on MTS can be found at www.mts.com.

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AD-Series740-0419



MTS Sensors, a division of MTS Systems Corporation (NASDAQ: MTSC), vastly expanded its range of products and solutions after MTS acquired PCB Piezotronics, Inc. in July, 2016. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corp.; IMI Sensors and Larson Davis are divisions of PCB Piezotronics, Inc.; Accumetrics, Inc. and The Modal Shop, Inc. are subsidiaries of PCB Piezotronics, Inc.