



MODEL 121A4X / 102A4X

HAZARDOUS AREA APPROVED INDUSTRIAL DYNAMIC ICP® PRESSURE SENSORS

- Detect and Monitor pulsations, instability, surges, turbulence and acoustics
- Hazardous location troubleshooting, predictive maintenance, and process improvement
- All-welded, hermetically sealed, stainless steel construction
- For gas compressors, chemical plants, power generation, hazardous processes

CSA (CANADA & US):
AEX NA IIC T4, DIV2 CL1 GR A-D
EX NL IIC T4, DIV2 CL1 GR A-D
AEX IA IIC T4, DIV1 CL1 GR A-D
EX IA IIC T4, DIV1 CL1 GR A-D

ATEX:
EX IA IIC T4
EX NL IIC T4
EX NA IIC T4



SOLID-STATE, QUARTZ PIEZOELECTRIC SENSING ELEMENTS WITH INTEGRAL MICROELECTRONIC ICP® AMPLIFIER

Piezoelectric pressure sensors offer the unique ability to respond to very rapid pressure spikes, pulsations and surges. They can also sense minute pressure fluctuations, while subjected to very high static pressures. Series 121A4X case isolated and 102A4X ground isolated Hazardous Area Approved, dynamic ICP® pressure sensors satisfy such measurement requirements in monitoring, diagnostic, troubleshooting, and control applications typical of hazardous factory environments.

Applications include monitoring dynamic pressure events, such as surges; pulsations; spikes; leak detection; combustion instability; and acoustics found in operation of compressors, pumps, pipelines and gas turbines. Sensors may be used with ICP® signal conditioning and permit use of a variety of inexpensive 2-wire cable systems. The low impedance signal may be transmitted over long cable distances, and sensors may be used in dirty environments without signal degradation. Series 121A4X case isolation eliminates all electrical noise from both environment and structure. Series 102A4X ground isolation eliminates electrical noise from the structure under test; however, there is still a chance to pick up unwanted electrical noise from the environment.

SPECIFICATIONS												
Model Number	121A41		121A44		121A45		102A43		102A44		102A45	
Performance	English	SI	English	SI	English	SI	English	SI	English	SI	English	SI
Measurement Range	100 psi	689.5 kPa	50 psi	344.7 kPa	500 psi	3447 kPa	4000 psi	27,580 kPa	50 psi	344.7 kPa	500 psi	3447 kPa
Sensitivity ($\pm 20\%$)	50 mV/psi	7.25 mV/kPa	100 mV/psi	14.5 mV/kPa	10 mV/psi	1.45 mV/kPa	1 mV/psi	0.145 mV/kPa	100 mV/psi	14.5 mV/kPa	10 mV/psi	5 mV/ $\mu\epsilon$
Maximum Pressure (step)	1000 psi	6895 kPa	500 psi	3447 kPa	5000 psi	34,470 kPa	4000 psi	27,580 kPa	500 psi	3447 kPa	4000 psi	27,580 kPa
Maximum Pressure (Total)	8000 psi	55,160 kPa	8000 psi	55,160 kPa	8000 psi	55,160 kPa	4000 psi	27,580 kPa	4000 psi	27,580 kPa	4000 psi	27,580 kPa
Resolution	0.004 psi	0.028 kPa	0.0005 psi	0.003 kPa	0.003 psi	0.02 kPa	0.1 psi	0.69 kPa	0.001 psi	0.0069 kPa	0.010 psi	0.069 kPa
Resonant Frequency	> 60 kHz						> 250 kHz					
Rise Time (Reflected)	< 4 μ sec						< 2 μ sec					
Low Frequency Response (-5 %)	0.5 Hz											
Non-Linearity	< 2 % FS						< 1 % FS					
Environmental												
Acceleration Sensitivity	< 0.05 psi/g	< 0.035 kPa/(m/s ²)	< 0.05 psi/g	< 0.035 kPa/(m/s ²)	< 0.05 psi/g	< 0.035 kPa/(m/s ²)	< 0.002 psi	< 0.0014 kPa/g	< 0.002 psi	< 0.0014 kPa/g	< 0.002 psi	< 0.0014 kPa/g
Temperature Range (Operating)	-65 to +250 °F	-54 to +121 °C	-65 to +250 °F	-54 to +121 °C	-65 to +250 °F	-54 to +121 °C	-65 to +250 °F	-54 to +121 °C	-65 to +250 °F	-54 to +121 °C	-65 to +250 °F	-54 to +121 °C
Temperature Coefficient of Sensitivity	<0.1%/°F	<0.18%/°C	<0.1 %/°F	<0.18%/°C	<0.1 %/°F	<0.18%/°C	<0.1%/°F	<0.18%/°C	<0.1 %/°F	<0.18%/°C	<0.1 %/°F	<0.18%/°C
Maximum Flash Temperature	+3,000 °F	+1,650 °C	+3,000 °F	+1,650 °C	+3,000 °F	+1,650 °C	+3,000 °F	+1,650 °C	+3,000 °F	+1,650 °C	+3,000 °F	+1,650 °C
Hazardous Area Approval	ATEX, CSA (C-US) NRTL - Canadian Standards Association											
Electrical												
Output Polarity (Positive Pressure)	Positive											
Discharge Time Constant (at room temp)	> 1.0 sec											
Excitation Voltage	22 to 28 VDC						20 to 30 VDC					
Constant Current Excitation	2-20 mA											
Output Impedance	< 100 ohm											
Output Bias Voltage	10 to 15 VDC						8 to 14 VDC					
Electrical Isolation	Case Isolated > 108 ohm						Ground Isolated > 108 ohm					
Physical												
Sensing Geometry	Compression											
Sensing Element	Quartz											
Housing Material	316 L Stainless Steel						17-4 PH Stainless Steel					
Diaphragm	316 L Stainless Steel											
Sealing	Welded Hermetic											
Mounting Thread	1/4-27 NPT						1/8-27 NPT					
Electrical Connector	2-pin MIL-C-5015						10-32 Coaxial Jack					
Weight	2.7 oz	75.6 gm	2.7 oz	75.6 gm	2.7 oz	75.6 gm	0.6 oz	17 gm	0.6 oz	17 gm	0.6 oz	17 gm



3425 Walden Avenue, Depew, NY 14043-2495 USA

Toll-Free in the USA: 800 959 4464

Phone: 1 716 684 0001 | Email: info@pcb.com

IMI Sensors, a division of PCB Piezotronics, Inc. manufactures industrial vibration monitoring instrumentation, such as accelerometers, vibration transmitters and switches that feature rugged stainless steel housings and survive in harsh environments like paper and steel mills, mines, gas turbines, water treatment facilities and power plants. Integrating with portable analyzers and PLC's, IMI instrumentation helps maintenance departments reduce downtime and protect critical machinery. Visit IMI Sensors at www.pcb.com. 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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