

# Extreme Environment Dynamic Pressure Sensors

## PCB® Cryogenic Series 102A

### Highlights

- Fast rise time of  $\leq 2 \mu\text{sec}$  from quartz element, with high resonant frequency  $\geq 250 \text{ kHz}$
- Welded, hermetically sealed, stainless steel construction
- Electrically ground isolated, which helps prevent ground loop challenges
- Calibration supplied at room temperature with thermal coefficients at  $-320 \text{ }^\circ\text{F}$  ( $-196 \text{ }^\circ\text{C}$ )

PCB® Cryogenic quartz dynamic pressure sensors are a high-resolution ICP® pressure sensor design, specially made for cryogenic environments. They consistently follow dynamic events found in cryogenic turbo pumps for liquid fuel handling systems or biomedical research.



## PCB® High Temperature Series 112A & 116B

### Highlights

- Laser welded, hermetically sealed quartz sensing elements
- Fused ceramic insulation connectors
- Internal acceleration compensation minimizes vibration sensitivity
- Calibration supplied at room temperature with thermal coefficients up to  $+750 \text{ }^\circ\text{F}$  ( $+399 \text{ }^\circ\text{C}$ )

PCB® High Temperature quartz dynamic pressure sensors are designed for operation at the highest temperatures. They are structured with quartz crystals and operate, without cooling, up to  $+750 \text{ }^\circ\text{F}$  ( $+399 \text{ }^\circ\text{C}$ ) on compressors and pumps. Special mounting adaptors can be supplied to fit existing mounting holes. Water cooled adaptors are available to provide a lower temperature thermally stable environment that allow sensors to operate in applications above their normal operating range.

Hard-line cables are recommended for operating temperatures above  $+500 \text{ }^\circ\text{F}$  ( $+260 \text{ }^\circ\text{C}$ ). The cable can be welded to the sensor for operation in pressurized environments. All of these features ensure reliable operation in high temperature environments.





# Extreme Environment Pressure Sensors

Extreme Enviro:	Cryogenic		High Temperature		
<b>Model Number</b>	<b>102A10</b>	<b>102A14</b>	<b>112A05</b>	<b>116B</b>	<b>116B03</b>
Measurement Range	100 psi 690 kPa	5k psi 34,475 kPa	5k psi 34,475 kPa	100 psi 690 kPa	100 psi 690 kPa
Useful Overrange [1]	200 psi 1380 kPa	10k psi 68,950 kPa	—	—	—
Sensitivity	50 mV/psi [4] 7.25 mV/kPa [4]	1 mV/psi [4] 0.145 mV/kPa [4]	1.1 pC/psi 0.16 pC/kPa	6 pC/psi 0.87 pC/kPa	6 pC/psi 0.87 pC/kPa
Maximum Pressure (Static)	15k psi 103,425 kPa	15k psi 103,425 kPa	10k psi 68,950 kPa	3k psi 20,685 kPa	3k psi 20,685 kPa
Resolution	2m psi 0.014 kPa	100m psi 0.69 kPa	4m psi [3] 0.028 kPa [3]	0.3m psi [3] 0.0021 kPa [3]	0.3m psi [3] 0.0021 kPa [3]
Resonant Frequency	≥ 250 kHz	≥ 250 kHz	≥ 200 kHz	≥ 55 kHz	≥ 55 kHz
Rise Time (Reflected)	≤ 2 μsec	≤ 2 μsec	≤ 2 μsec	≤ 9 μsec	≤ 9 μsec
Low Frequency Response (-5 %)	0.5 Hz	0.25 Hz	—	—	—
Non-linearity [2]	≤ 1 %	≤ 1 %	≤ 1 %	≤ 1 %	≤ 1 %
Acceleration Sensitivity	≤ 0.002 psi/g ≤ 0.0014 psi/(m/s <sup>2</sup> )	≤ 0.002 psi/g ≤ 0.0014 psi/(m/s <sup>2</sup> )	≤ 0.003 psi/g ≤ 0.0021 psi/(m/s <sup>2</sup> )	≤ 0.002 psi/g ≤ 0.0014 psi/(m/s <sup>2</sup> )	≤ 0.002 psi/g ≤ 0.0014 psi/(m/s <sup>2</sup> )
Temperature Range	-320 to +212 °F -196 to +100 °C	-320 to +212 °F -196 to +100 °C	-400 to +600 °F -240 to +316 °C	-400 to +650 °F -240 to +345 °C	-400 to +750 °F -240 to +399 °C
Discharge Time Constant	≥ 1 sec	≥ 2 sec	—	—	—
Electrical Connector	10-32 Coaxial Jack	10-32 Coaxial Jack	10-32 Coaxial Jack	10-32 Coaxial Jack	10-32 Coaxial Jack
Housing Material	316 Stainless Steel	316 Stainless Steel	17-4 PH Stainless Steel	316 Stainless Steel	316 Stainless Steel
Diaphragm Material	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Sealing	Welded Hermetic	Welded Hermetic	Welded Hermetic	Welded Hermetic	Welded Hermetic
<b>Supplied Accessories</b>					
English Clamp Nut	—	—	060A03	060A12	060A12
Metric Clamp Nut	—	—	060A05	060A14	060A14
Seal Rings	(3) 065A44	(3) 065A44	(3) 065A02, 065A05	065A37	065A37
<b>Additional Versions</b>					
Metric Mount	M102A10	M102A14	—	—	—
<b>Additional Accessories</b>					
English Installation Tooling Kit	—	—	040A10	—	—
Metric Installation Tooling Kit	—	—	040A11	—	—
Pipe Thread Mounting daptor	—	—	062A01	062A06	062A06
English Mounting Adaptor	—	—	061A01	061A60	061A60
Metric Mounting Adaptor	—	—	061A10	—	—
Water-cooled Mounting Adaptor	—	—	064B02	064B06	064B06
Mating Cable Connector	EB	EB	EB	EB	EB
Recommended Cables	002, 003 CE	002, 003 CE	003	003, 029 ≥ 500 °F	003, 029 ≥ 500 °F
<b>Notes</b>					
[1] For +10 volt output, minimum 24 VDC supply voltage required. Negative 10 volt output may be limited by output bias. [2] Zero-based, least-squares, straight line method [3] Resolution dependent on range setting and cable length used in charge system. [4] Special cryogenic microelectronics used in Series 102A sensors are current-sensitive (sensitivity changes about 1% per mA), so they should be used and calibrated w/4mA constant current.					

Hochwertige Messtechnik und Beratung aus einer Hand



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