



CRYOGENIC ACCELEROMETERS & PRESSURE SENSORS

 **PCB PIEZOTRONICS**
AN AMPHENOL COMPANY

 **ENDEVCO**
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CRYOGENIC ICP® ACCELEROMETERS

Cryogenic ICP® accelerometers are specifically designed to operate at temperatures below the typical -65 °F (-54 °C) temperature limit of most voltage mode sensors. The use of specialized, built-in, cryogenic ICP® circuitry and quartz shear sensing technology provides survivability in demanding environments such as liquid nitrogen. Each sensor is hermetically sealed and individually tested to determine the thermal coefficient of sensitivity at -320 °F (-196 °C) ensuring reliable operation and accurate measurements. Choose from a variety accelerometers ranging from lightweight units for minimizing mass loading effects to high sensitivity versions for sensing low-level vibrations.



| CRYOGENIC ICP® ACCELEROMETERS | | | | | |
|--|---------------------------------------|------------|---------------------------------------|--|------------|
| Model Number | PCB 351B03 | PCB 351B04 | PCB 351B31 | PCB 351B41 | PCB 351B42 |
| Performance | | | | | |
| Sensitivity | 10 mV/g (1.02 mV/(m/s ²)) | | 50 mV/g (5.10 mV/(m/s ²)) | 100 mV/g (10.2 mV/(m/s ²)) | |
| Measurement Range | ±150 g pk (±1472 m/s ² pk) | | ±30 g pk (±294 m/s ² pk) | ±15 g pk (±147 m/s ² pk) | |
| Frequency Range (±5%) | 1 - 6000 Hz | | 1 - 4000 Hz | 1 - 2000 Hz | |
| Options: Available with ground isolation | J351B03 | J351B04 | J351B31 | J351B41 | J351B42 |



| CRYOGENIC MINIATURE ICP® ACCELEROMETERS | | | |
|--|---------------------------------------|-------------|--|
| Model Number | PCB 351B11 | PCB 351B14 | PCB 351A15 |
| Performance | | | |
| Sensitivity | 5 mV/g (0.51 mV/(m/s ²)) | | 5.5 mV/g (0.56 mV/(m/s ²)) |
| Measurement Range | ±300 g pk (±2943 m/s ² pk) | | ±1000 g pk (±9810 m/s ² pk) |
| Frequency Range | 1 - 10000 Hz | 1 - 8000 Hz | 1.25 to 6500 Hz |
| Options: Available with ground isolation | J351B11 | J351B14 | - |
| Options: Available in Metric | M351B11 | M351B14 | - |

CRYOGENIC CHARGE OUTPUT PIEZOELECTRIC ACCELEROMETERS

Endevco® cryogenic piezoelectric accelerometers are built specifically for measuring vibration under cryogenic conditions down to -452 °F (-269 °C). Signal outputs of these units are very stable even at extremely low temperatures. Their rugged internal construction is designed to withstand multiple cycles of thermal shock with steep temperature gradient. The accelerometers are self-generating devices that require no external power source for operation and contain no electronics. This allows them to operate below the -320 °F (-196 °C) limit of ICP accelerometers, down to -452 °F (-269 °C).



| CRYOGENIC CHARGE OUTPUT PIEZOELECTRIC ACCELEROMETERS | | | |
|--|---|---|---|
| Model Number | Endevco 7722 | Endevco 7724 | Endevco 2271A / 2271AM20 |
| Performance | | | |
| Description | Immune to thermal transients, grounded design | Immune to thermal transients, isolated design | High sensitivity, side (2271A) or top exit (2271AM20) connector |
| Sensitivity (pC/g typical) | 3.7 | 3.7 | 11.5 |
| Sinusoidal Limit (g) | 500 | 500 | 1000 |
| Shock Limit (g) | 2500 | 2500 | 10000 |
| Frequency Response (±1 dB Hz) | 1 - 6000 | 1 - 6000 | 1 - 8000 |



| REMOTE CHARGER CONVERTERS WITH TEDS | | | |
|-------------------------------------|----------------------------|----------------------------|----------------------------|
| Model Number | Endevco 2771C-01 | Endevco 2771C-1 | Endevco 2771C-5 |
| Performance | | | |
| Gain | .1 mV/pC | 1 mV/pC | 5 mV/pC |
| Input Type | Single-ended piezoelectric | Single-ended piezoelectric | Single-ended piezoelectric |
| Number of channels | 1 | 1 | 1 |
| Configuration | In-line | In-line | In-line |

CRYOGENIC DYNAMIC PRESSURE SENSORS

The 102B1x Series ICP® pressure sensors feature ground isolation and low operating temperature capability ideal for measuring cryogenic pumps, cryogenic fuel systems, and rocket motor combustion instability. Each sensor is hermetically sealed and individually tested to determine the thermal coefficient of sensitivity at -320 °F (-196 °C) ensuring reliable operation and accurate measurements.



| CRYOGENIC ICP® PRESSURE SENSORS | | | | |
|---------------------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| Model Number | PCB 102B13 | PCB 102B14 | PCB 102B11 | PCB 102B10 |
| Performance | | | | |
| Sensitivity | 0.5 mV/psi (0.073 mV/kPa) | 1 mV/psi (0.145 mV/kPa) | 5.0 mV/psi (0.725 mV/kPa) | 50 mV/psi (7.25 mV/kPa) |
| Measurement Range | 10 kpsi (68950 kPa) | 5 kpsi (34475 kPa) | 1 kpsi (6895 kPa) | 100 psi (690 kPa) |
| Resonant Frequency | ≥250 kHz | ≥250 kHz | ≥250 kHz | ≥250 kHz |
| Mounting Thread | 3/8-24 | 3/8-24 | 3/8-24 | 3/8-24 |



| CRYOGENIC ICP® PRESSURE SENSORS | | | |
|---------------------------------|-------------------------|-------------------------|-------------------------------|
| Model Number | PCB 102M81A | PCB 102M80A | PCB 102M295 (Ground Isolated) |
| Performance | | | |
| Sensitivity | 10 mV/psi (1.45 mV/kPa) | 50 mV/psi (7.25 mV/kPa) | 1.5 mV/psi (0.218 mV/kPa) |
| Measurement Range | 500 psi (3447 kPa) | 100 psi (690 kPa) | 3500 psi (24132 kPa) |
| Resonant Frequency | ≥250 kHz | ≥250 kHz | ≥250 kHz |
| Mounting Thread | 7/16-20 UNF - 2A | 7/16-20 UNF - 2A | 7/16-20 UNF |

PCB Model 112B05 charge output pressure sensor is unique for its ability to withstand both extreme heat and cold from -400 to +500 °F (-240 to +260 °C)



| CRYOGENIC CHARGE OUTPUT PRESSURE SENSOR | |
|---|-------------------------|
| Model Number | PCB 112B05 |
| Performance | |
| Sensitivity | 1.1 pC/psi (.16 pC/kPa) |
| Measurement Range | 5000 psi (34475 kPa) |
| Resonant Frequency | ≥200 kHz |
| Mounting Thread | 5/16-24 |



LOW NOISE COAXIAL CABLE

PCB MODEL 003A

- Blue TFE jacket
- 10-32 plug to 10-32 plug
- Temperature range: -320 to +500°F (-196 to +260 °C)
- 1 - 100 ft. options available



LOW NOISE COAXIAL CABLE

PCB MODEL 003G

- Blue TFE jacket
- 5-44 plug to 10-32 plug
- Temperature range: -320 to +500°F (-196 to +260 °C)
- 3 - 30 ft. options available



LOW NOISE COAXIAL CABLE

ENDEVCO MODEL 3090C

- Red PTFE jacket
- 10-32 plug to 10-32 plug
- Temperature range: -452 to +500°F (-269 to +260 °C)
- 1 - 50 ft. options available



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AD-CryogenicICP-0823