

CXL-GP Series

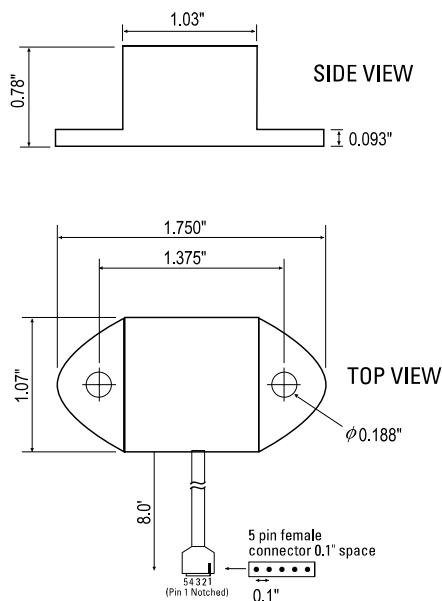
GENERAL PURPOSE ACCELEROMETER



- High Performance, 1-Axis and 3-Axis Accelerometers
- Small, Low-Cost
- Reliable Packaging with Screw-Down Mounting
- Factory Calibrated

Applications

- Automotive Testing
- Instrumentation
- Equipment Monitoring



Standard Package Dimensions

GP Series

The GP Series accelerometers are low cost, general purpose, linear acceleration and/or vibration sensors available in ranges of $\pm 4g$, $\pm 10g$, and $\pm 25g$.

Common applications are automotive testing, instrumentation, and equipment monitoring. The GP Series sensing element is a silicon micro-machined capacitive beam. The capacitive beam is held in force balance for full scale non-linearity of less than 0.2%.

The GP Series offers wide dynamic range, has excellent frequency response, operates on a single 4.9 to 5.5 VDC power supply, and is easy to interface to standard data acquisition systems. The 3-axis version (GP3) can be specified with an internal regulator (-R option) for use with a 5.5 to 36 V unregulated power supply.

The GP Series sensors provide a direct high-level analog voltage output. The output requires no external signal conditioning electronics and may be directly interfaced to an A/D or other data acquisition hardware.

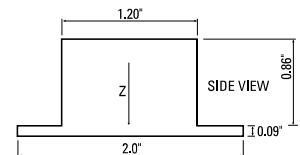
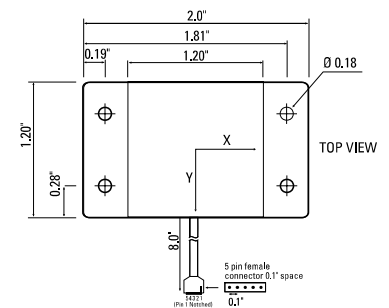
Compared to traditional piezoelectric and piezoresistive accelerometer technologies, the silicon micromachined sensors offer equivalent performance at a significantly lower cost.

The GP Series is offered with a standard 5-pin female connector. The highly flexible, low-mass cable prevents disruption of the measurement.

| Specifications | CXL04GP1 CXL04GP1Z CXL04GP3 | CXL10GP1 CXL10GP1Z CXL10GP3 | CXL25GP1 CXL25GP1Z CXL25GP3 | Remarks |
|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------|
| Performance | | | | |
| Input Range (g) | ± 4 | ± 10 | ± 25 | ± 5% |
| Zero g Drift (g) | ± 0.1 | ± 0.3 | ± 0.5 | 0°C to 70°C |
| Sensitivity (mV/g) | 500 ± 15 | 200 ± 5 | 80 ± 2 | |
| Transverse Sensitivity (% Span) | ± 5 | ± 5 | ± 5 | |
| Non-Linearity (% FS) | ± 0.2 | ± 0.2 | ± 0.2 | typical |
| Alignment Error (deg) | ± 2 | ± 2 | ± 2 | typical |
| Noise (mg rms) | 10 | 25 | 25 | typical |
| Bandwidth (Hz) ¹ | DC -100 | DC -100 | DC -100 | |
| Environment | | | | |
| Operating Temp. Range (°C) | -40 to +85 | -40 to +85 | -40 to +85 | |
| Operating Temp. Range - AL (°C) | -40 to +105 | -40 to +105 | -40 to +105 | |
| Shock (g) | 2000 | 2000 | 2000 | |
| Electrical | | | | |
| Supply Voltage (Volts) | + 4.9 to 5.5 | + 4.9 to 5.5 | + 4.9 to 5.5 | |
| Supply Voltage -R option (Volts) | + 5.5 to 36 | + 5.5 to 36 | + 5.5 to 36 | |
| Supply Current (mA) | 1/axis | 3/axis | 3/axis | typical |
| Zero g Output (Volts) | + 2.375 ± 0.1 | + 2.375 ± 0.1 | + 2.375 ± 0.1 | @25°C |
| Span Output (Volts) | ± 2.0 ± 0.1 | ± 2.0 ± 0.1 | ± 2.0 ± 0.1 | |
| Output Loading | > 2.0 Ω, < 2 nF | > 2.0 Ω, < 2 nF | > 2.0 Ω, < 2 nF | |
| Physical | | | | |
| Standard package | | | | |
| Size (in) | 0.78 x 1.75 x 1.07 | 0.78 x 1.75 x 1.07 | 0.78 x 1.75 x 1.07 | |
| (cm) | 1.98 x 4.45 x 2.72 | 1.98 x 4.45 x 2.72 | 1.98 x 4.45 x 2.72 | |
| Weight | 1.62 oz (46 gm) | 1.62 oz (46 gm) | 1.62 oz (46 gm) | |
| Aluminum package (-AL option) | | | | |
| Size (in) | 0.95 x 2.00 x 1.20 | 0.95 x 2.00 x 1.20 | 0.95 x 2.00 x 1.20 | |
| (cm) | 2.41 x 5.08 x 3.05 | 2.41 x 5.08 x 3.05 | 2.41 x 5.08 x 3.05 | |
| Weight | 2.40 oz (68 gm) | 2.40 oz (68 gm) | 2.40 oz (68 gm) | |

| Pin | Color | Function |
|-----|--------|------------|
| 1 | Red | Power In |
| 2 | Black | Ground |
| 3 | White | X-axis Out |
| 4 | Yellow | Y-axis Out |
| 5 | Green | Z-axis Out |

Pin Diagram



High Temperature Package Dimensions

Notes

¹ -3dB, DC coupled sensor

Non-linearity is the deviation from a best fit straight line at full scale. Transverse sensitivity is error measured in the primary axis output created by forces induced in the orthogonal axis. Transverse sensitivity error is primarily due to the effects of misalignment. Zero g drift is specified as the typical change in 0 g level from its initial value at +25°C to its worst case value at Tmin or Tmax. Specifications subject to change without notice.

Ordering Information

| Model | Axes | Span (g) | Sensitivity (m V/g) | Noise (mg rms) | Bandwidth (Hz) |
|----------------|--|----------|---------------------|----------------|----------------|
| CXL04GP1 | X | ± 4 | 500 | 10 | DC-100 |
| CXL04GP1Z | Z | ± 4 | 500 | 10 | DC-100 |
| CXL04GP3 | TRI | ± 4 | 500 | 10 | DC-100 |
| CXL10GP1 | X | ± 10 | 200 | 25 | DC-100 |
| CXL10GP1Z | Z | ± 10 | 200 | 25 | DC-100 |
| CXL10GP3 | TRI | ± 10 | 200 | 25 | DC-100 |
| CXL25GP1 | X | ± 25 | 80 | 25 | DC-100 |
| CXL25GP1Z | Z | ± 25 | 80 | 25 | DC-100 |
| CXL25GP3 | TRI | ± 25 | 80 | 25 | DC-100 |
| OPTIONS | | | | | |
| -R | Voltage Regulator, 5.5 – 36 VDC input. (Available in GP3 models only.) | | | | |
| -AL | High Temperature Package. Operating Temperature Range (°C): -40 to +105. (Available in GP3 models only.) | | | | |



High Temperature Package