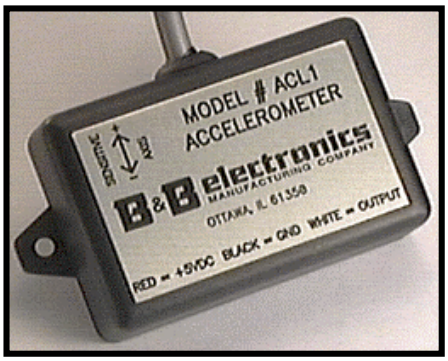
Not Recommended for New Installations.
Please contact Technical Support for more information.

Single Axis ±2g Accelerometer
Model ACL1



B&B Electronics' Model ACL1 is a single axis accelerometer which provides a 0-5V linear output voltage proportional to the applied acceleration ranging from ±2g's. This data is useful in such applications as measuring tilt, orientation and acceleration or detecting motion. Simply supply the unit with 5VDC and ground through the attached 6 foot shielded cable. The third conductor of the cable is the output signal, providing a linear voltage proportional to the force of acceleration. B&B Electronics' A/D products (such as the 232SDA10) provide an inexpensive method of logging the data to a computer. Figure 1 shows a typical connection to B&B Electronics' Model 232SDA12 module.

Connections

The ACL1 should be connected to a regulated 5VDC power supply. The red lead is the +5V connection, black is ground, and the white wire is signal output. The uninsulated conductor is the cable shield drain wire. The cable shield is not terminated on the sensor end. If the unit is being used with one of B&B Electronics' SDA series of analog to digital converters, the power may be derived from the 5V connection on the SDA unit. Note that if you are self-powering a 232SDA series unit from an RS-232 port, the power that can be drawn from the 232SDA is limited, and a power supply may be required. The white wire is the signal output connection.

Mounting

The ACL1 should be mounted firmly to the surface of the unit under test. The ACL1 is sensitive to vibration as well as linear acceleration. If linear acceleration is being recorded, choose a mounting location as free from vibration as possible. It is important to align the sensitive axis of the unit with the direction under study as closely as possible. However, a small amount of alignment error will not greatly affect the measurements. Table 1 shows the relationship of alignment error to output signal error.

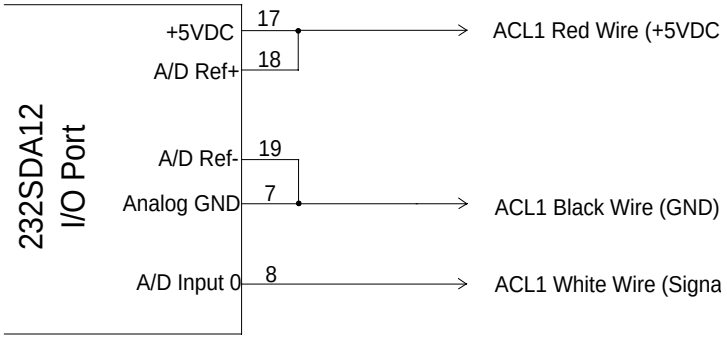


Figure 1. Typical Connection to SDA A/D Module

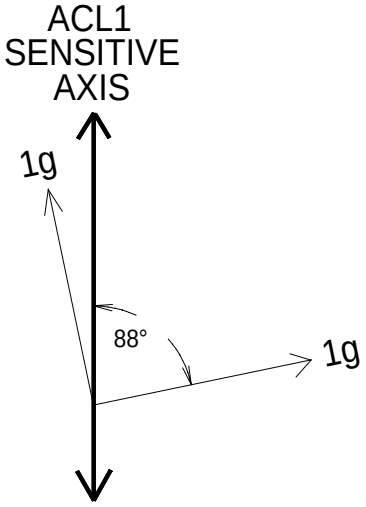


Figure 2.
Misalignment Example

Table 1

θx°	Signal at output %
0	100
1	99.98
2	99.94
3	99.86
5	99.62
10	98.48
30	86.60
45	70.71
60	50.00
80	17.36
85	8.72
87	5.25
88	3.49
89	1.7
90	0

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Note that with 2° of alignment error, the additional signal error is 0.06%, a relatively small source of error. It is important to note as well that accelerations near perpendicular to the sensitive axis will have a more significant impact. If there will be forces in axis other than the sensitive axis, more care should be taken in aligning the ACL1 to minimize error in the output signal. For example, assume the ACL1 is mounted with 2° of mounting error and two forces of 1g each are applied to the X and Y axis. The force in the X direction will result in a reading of 0.994g's, a small error of 0.006 g's. However, the force from the Y axis will contribute an error of 0.0349 g's.

Specifications

Max. output range:	0-5V
Iout:	±100 µA
0 g output level:	2.5V nominal
Output scale:	1V/g ±5%
Bandwidth:	170 Hz
Noise level:	60 mV P-P
Temperature Drift;	0.5% of reading max.
Power Supply:	4.75 - 5.25 VDC @ 10mA max.
Operating Temp.:	0 - 70 °C
Dimensions:	1.5" x 2.25" x 0.75"h w/2 mounting tabs
Cable:	6', 3 conductor, 24AWG, shielded with drain

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