

### FEATURES

- User configurable sensor range:  $\pm 30\text{ g}$ ,  $\pm 60\text{ g}$ ,  $\pm 120\text{ g}$ ,  $\pm 240\text{ g}$ ,  $\pm 480\text{ g}$
- Compliant with PSI5 Communication Protocol Version 1.3
  - Asynchronous operation: PSI5-A10P-250[228]/1L
  - Synchronous operation: PSI5-P10P-500/3L and others
  - Daisy-chain operation with bidirectional communication
- 10-bit sensor data
- 0.25  $\mu\text{s}$  data interpolation routine
- User-selectable, continuous auto-zero operation
- Electromechanical sensor self-test
- High resistance to EMI/RFI/BCI
- 4.5 V to 16.5 V operation
- Electronic serial number
- Qualified for automotive applications

### APPLICATIONS

- Front impact crash sensing
- Side impact crash sensing
- Shock and vibration detection
- Pedestrian collision sensing

### GENERAL DESCRIPTION

The [ADXL185B](#) z-axis sensor and the [ADXL189B](#) x-axis sensor are  $g$  range configurable, integrated single-axis satellite sensors, compliant with the PSI5 Version 1.3 specification. The [ADXL185B/ADXL189B](#) enable low cost solutions for front and side impact airbag satellite sensor applications. Acceleration data is sent to the control module via a digital 2-wire current loop interface bus.

The sensor  $g$  range is configurable to provide full-scale ranges from  $\pm 30\text{ g}$  to  $\pm 480\text{ g}$ . The devices can also be configured to transmit data from multiple  $g$  ranges during predefined time slots, in accordance with the PSI5 specification. The devices transmit 10-bit acceleration data to the control module and can be configured to include either a 1-bit parity check or a 3-bit cyclic redundancy check (CRC). Each device has a unique electronic serial number.

The [ADXL185B/ADXL189B](#) are available in a 16-lead, narrow-body SOIC package with an exposed pad. The [ADXL185B/ADXL189B](#) are specified to operate over the full automotive temperature range of  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

### FUNCTIONAL BLOCK DIAGRAM

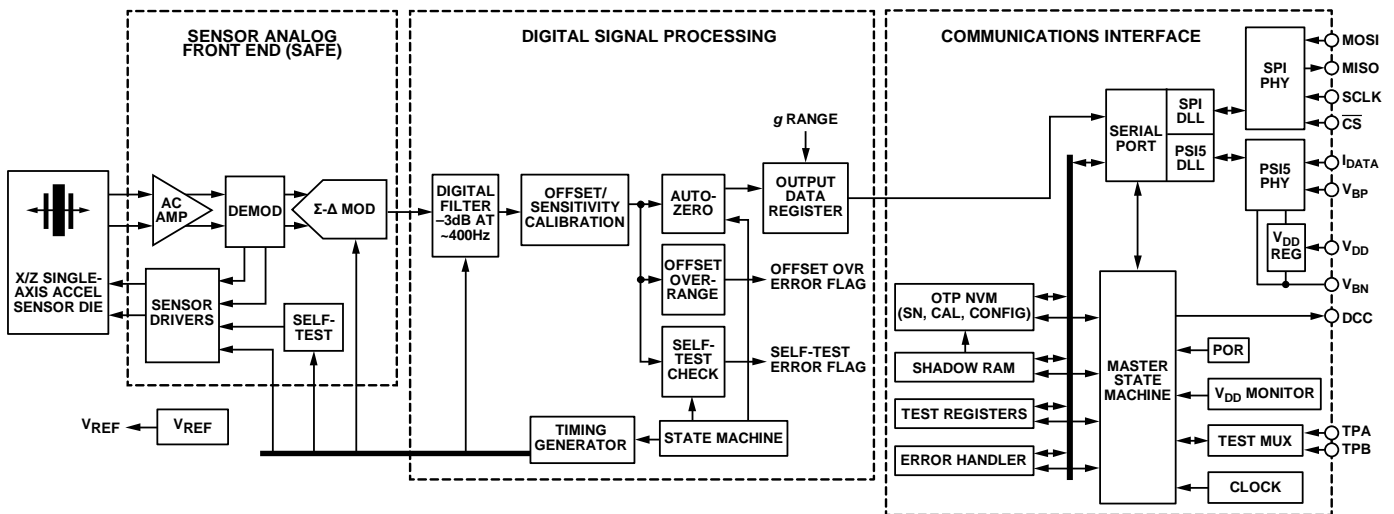


Figure 1.

For more information about the [ADXL185B/ADXL189B](#), please contact the Analog Devices, Inc., [Customer Interaction Center](#) at [http://www.analog.com/en/content/technical\\_support\\_page/fca.html](http://www.analog.com/en/content/technical_support_page/fca.html) to connect with a technical support specialist.

**NOTES**