iSensor™
Evaluation Tool
Overview

August 12, 2008

The World Leader in High Performance Signal Processing Solutions
iSensor™ Evaluation Tool Overview

Purpose – Why these tools?

1. Simplify iSensor integration into existing digital processor platforms such as uC, DSP, FPGA, CPLD, etc. Which would approach would get you writing code and making measurements quicker?
   - Designing a custom PCB, having it fabricated, and managing the solder reflow process for a new package style or......
   - Bolting a small iSensor PCB to your platform, connecting its SPI to you processor’s SPI or other digital I/O.

   Provide simple demonstration tools that enable quick verification of basic iSensor functions and in some cases, characterization of critical performance criteria.
**iSensor™ Evaluation Tools**

**Evaluation Boards**

Evaluation board – ADIS16XXX/PCB:

- Designed for integrating into existing digital platforms
- Eliminates the need for “prototype” soldering
- Small size: 1.2” x 1.3”
- Access SPI port using standard ribbon cable (2mm pitch)
- 2mm mounting holes for secure attachment
- Drops into ADISEVAL & ADISEVAL/USB Evaluation Systems
  - Simplifies interface design for evaluating multiple devices
Sensor™ Evaluation Tools
Evaluation Boards – Triple Axis Interface

ADIS163xx connector was designed to minimize board space.

The ADIS163xx/PCBZ provides a simple connector translation.

ADIS163xx connector geometries are too small for ribbon cable interfaces!

For prototype needs, this provides ribbon cable-friendly interface.

Just bolt the device and PCB to your platform, cable over to your processor, and start developing your interface and taking data.

ADIS163xx/PCBZ orders include ADIS163xxAMLZ part & interface PCB.
**iSensor™ Evaluation Tools**

**ADISUSB, PC-Based Evaluation System**

- **Complete evaluation system**
  - SPI-to-USB Port Interface PCB
  - USB A-to-B Interface Cable
  - iSensor™ Evaluation Software
    - Device control
    - Data plots, data logging

No Power Supply Required!

**Products supported:**

ADIS16003, ADIS16006, ADIS16080, ADIS16100, ADIS16201, ADIS16203, ADIS16204, ADIS16209, ADIS16250, ADIS16251, ADIS16255, ADIS16350, ADIS16354, ADIS16355

ADIS16XXX/PCB Plug-in (sold separately)

ADIS1635xAMLZ Plug-in (sold separately)
iSensor® The Simple Solution for Sensor Integration
ADIS16209 Demonstration Tips – Horizontal Calibration

1. Use a set of business cards to prop up one side of the evaluation system and simulate a system-level offset bias.

2. Click on Read to observe the incline angle measurement.

KEY POINTS

• Many users will experience offset due to system-level influences, such as PCB thickness variation and solder volume tolerances, etc.

• The ADIS16209’s auto-null provides a simple means to overcome these offset factors.
1. Click on Calibration to open Calibration Register Window
2. Click on auto-null, and the part calculates the appropriate adjustment factors
3. Click Write, then Close, then Read to observe the improved behavior
iSensor® The Simple Solution for Sensor Integration
ADIS16209 Demonstration Tips – Horizontal Calibration

Success!
Tip: Use standoffs to isolate each axis.
**iSensor™ Evaluation Tools**
**ADISEVAL, PC-Based Evaluation System**

- Complete evaluation system
  - SPI-to-Parallel Port Interface PCB
  - IEEE Parallel Interface cable
  - Ribbon cables
  - iSensor™ Evaluation Software
    - Device control
    - Data plots, data logging

Products supported:
ADIS16003, ADIS16006, ADIS16060, ADIS16080, ADIS16100, ADIS16201, ADIS16203, ADIS16204, ADIS16209, ADIS16250, ADIS16251, ADIS16255

ADIS16XXX/PCB Plug-in (sold separately)
iSensor™ Evaluation Tools
ADIS16350/4/5 Evaluation Software

1. Read output registers
2. Device Configuration: Drop-down menu that provides controls for: calibration, dynamic range, sample rate, filtering, alarms, and digital I/O controls
3. Data-logging controls
Analog Devices Confidential Information
1. Read output registers
2. External sample rate adjustment
3. Data logging
4. Internal sample rate setting
5. Dynamic range setting
6. Calibration, Alarms, and other features
**iSensor™ Evaluation Tools**
**ADIS16201 Evaluation Software**

1. Read output registers
2. External Sample rate adjustment
3. Data logging
4. Internal sample rate setting and filter settings

![Evaluation Software Interface]

- **Output Registers**
  - SUPPLY_OUT (V): 3.276
  - XACCL_OUT (G): 0.007
  - YACCL_OUT (G): -0.006
  - AUX_ADC (V): 1.659
  - TEMP_OUT (degC): 18.420
  - XINCL_OUT (deg): 0.400
  - YINCL_OUT (deg): -0.400

- **Status Register**
  - Read Status: OK
  - Power Supply Low: OK
  - Power Supply High: OK
  - Control Write Flag: OK
  - SPI Write Flag: OK
  - Alarm1 Set: OK
  - Alarm2 Set: OK

- **Sample Rate Settings**
  - SMPL_PRD: 10
  - Sample Rate (mS): 1.331
  - AVG_CNT: 7
  - Roll Avg Count: 128
  - Avg Rate (Sec): 0.17

- **Auxiliary DAC (AUX_DAC)**
  - Output (Volts): 0.0000

- **Powerdown (PWR_MDE)**
  - Time (Sec): 0.0

- **Self Test**
  - Self-Test: Disabled

Analog Devices Confidential Information
iSensor™ Evaluation Tools
ADIS16203 Evaluation Software

1. Read output registers
2. External Sample rate adjustment
3. Data logging
4. Internal sample rate setting and filter settings
5. Visual incline angle indication
6. Programmable alarms
1. Device settings: which product?
2. Select data to plot: Rate, Temp, ADC inputs
3. Plotting setup
4. Data logging setup
5. Scale: Hint – Try right clicking here!

NOTE: ADIS16060 and ADIS16080 covered by this same package
**iSensor™ Evaluation Tools**

**ADIS16003 Evaluation Software**

1. Device settings: which product?
2. Select data to plot: Rate, Temp, ADC inputs
3. Plotting setup
4. Data logging setup
5. Scale: Hint – Try right clicking here!

**NOTE:** ADIS16006 covered by this same package