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iSensor®
Demo/Evaluation Tips for the ADIS1636x

Mark Looney
iSensor Application Engineer
February 19, 2009

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Evaluation Tool Overview

1. **Interface Connector for those that need to integrate this on a new PCB**
   - The ADIS1636xBMLZ use the FTMH-112-03 series of connectors from Samtec. www.samtec.com/FTMH
   - The evaluation tools use the CLM-112-02-LM-D-A connector from Samtec
   - Acquire mating connector from Samtec, not ADI. www.samtec.com/samples
   - Alternate mating connector: www.samtec.com/MLE

2. **Evaluation/Interface Board (ADIS1636x/PCBZ) for simpler connection to an existing processor/system PCB.**
   - These boards provide a simple connector translation from the 1mm pitch on the ADIS1636xBMLZ products to a 2mm pitch, which is easier to use in common prototyping environments such as hand-soldering and ribbon cabling.
   - NOTE: PCB not sold separately.
   - Part numbers for ordering:
     ADIS16360/PCBZ, ADIS16364/PCBZ, ADIS16365/PCBZ

3. **Evaluation System (ADISUSBZ) for those that prefer a simple PC interface**
   - This system provides a simple USB interface, along with software for simple data collection and evaluating most of the ADIS1636x functions and performance.
   - Supports approximately 150-200SPS sample rate.
   - CAUTION: This system DOES NOT provide an appropriate framework for developing a system around the ADIS1636xBMLZ. NO source code or code development support is included with this kit.
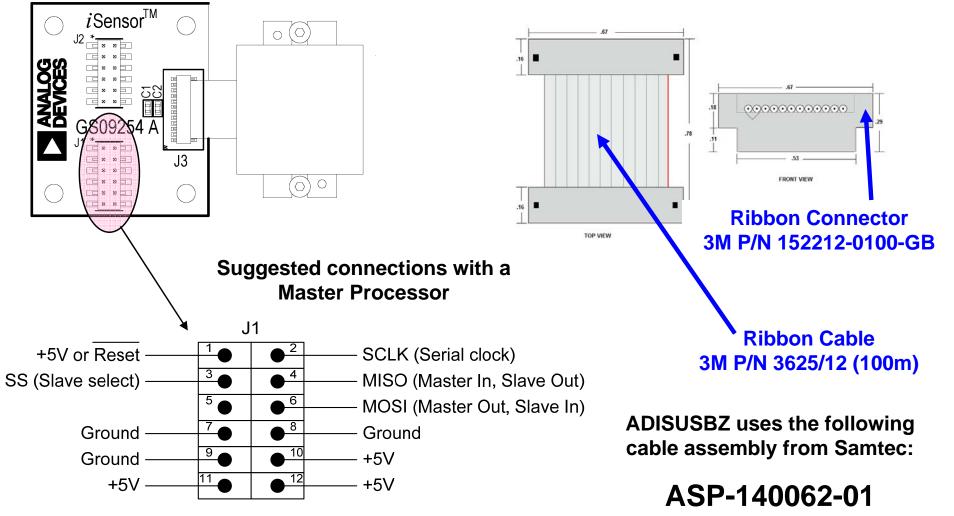   - Part number for ordering: **ADISUSBZ**

ADIS16365/PCBZ Shown Here

ADISUSBZ & ADIS16365BMLZ Shown Here (Sold separately)

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Hooking up to the ADIS1636x/PCBZ

J1 Ribbon Cable Interface Parts

Ribbon Connector
3M P/N 152212-0100-GB

Ribbon Cable
3M P/N 3625/12 (100m)

Suggested connections with a Master Processor

	J1	
+5V or $\overline{Reset}$ — 1	2	— SCLK (Serial clock)
SS (Slave select) — 3	4	— MISO (Master In, Slave Out)
5	6	— MOSI (Master Out, Slave In)
Ground — 7	8	— Ground
Ground — 9	10	— +5V
+5V — 11	12	— +5V

ADISUSBZ uses the following cable assembly from Samtec:

ASP-140062-01

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ADISUSBZ-based Evaluation
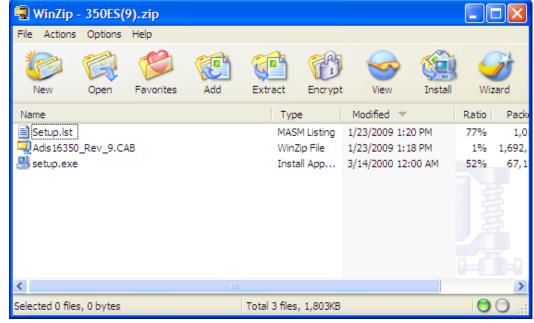
All ADIS1636x parts use the ADIS16350 evaluation software package.

1. **Download 350ES.zip into a temporary directory and unpack its contents.**
   http://www.analog.com/static/imported-files/eval_boards/350ES.zip

   OR GO TO:

   www.analog.com/isensor-evaluation,
   then click on EVALUATION SOFTWARE DOWNLOADS
   then click on 350ES.zip option

2. **Double-click on "setup.exe"**

WinZip - 350ES(9).zip

Name	Type	Modified	Ratio	Packe
Setup.lst	MASM Listing	1/23/2009 1:20 PM	77%	1,0
Adis16350_Rev_9.CAB	WinZip File	1/23/2009 1:18 PM	1%	1,692,
setup.exe	Install App...	3/14/2000 12:00 AM	52%	67,1

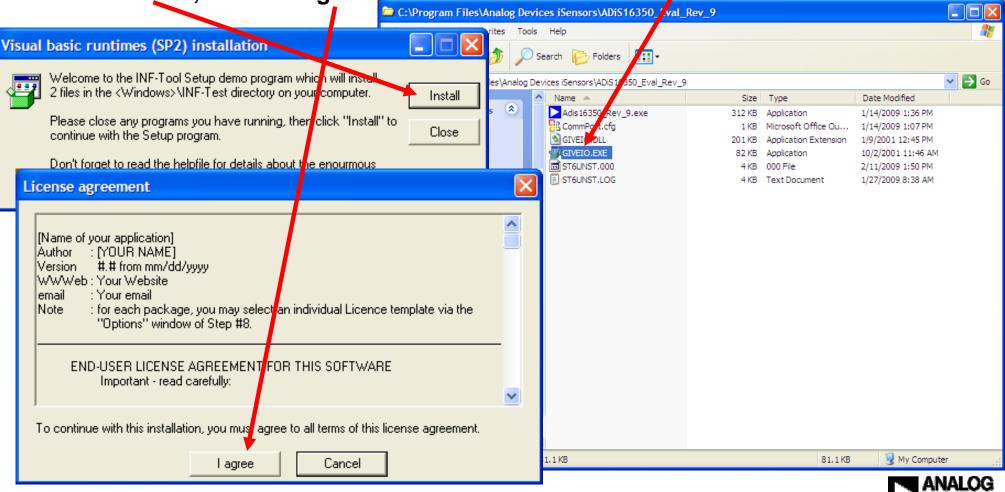Selected 0 files, 0 bytes   Total 3 files, 1,803KB

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ADIS16350 Demonstration Software Installation

Installation Steps (continued)

3. **Click OK on next screen**

4. **Click here to start installation**

ADiS16350_Eval_Rev_9 Setup

Welcome to the ADiS16350_Eval_Rev_9 installation program.

Setup cannot install system files or update shared files if they are in use. Before proceeding, we recommend that you close any applications you may be running.

OK   Exit Setup

ADiS16350_Eval_Rev_9 Setup

Begin the installation by clicking the button below.

Click this button to install ADiS16350_Eval_Rev_9 software to the specified destination directory.

Directory:
C:\Program Files\Analog Devices   Change Directory

Exit Setup

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ADIS16350 Demonstration Software Installation

Installation Steps (continued)

5. Click Continue

6. If this message comes up, click on "No"

ADiS16350_Eval_Rev_9 - Choose Program Group

Setup will add items to the group shown in the Program Group box. You can enter a new group name or select one from the Existing Groups list.

Program Group:

Analog Devices iSensors

Existing Groups:

Accessories
ADIS16130_Evaluation_Rev_2
Analog Devices iSensors
Infotriever
palmOne
PowerDesk Pro 5.0
SpamBayes
Startup
WinRAR

Continue   Cancel

Version Conflict

A file being copied is not newer than the file currently on your system. It is recommended that you keep your existing file.

File name: 'C:\Program Files\Analog Devices iSensors\ADiS16350_Eval_Rev_9\CommPort.cfg'

Description: "

Your version: "

Do you want to keep this file?

Yes   No   No to All

ADiS16350_Eval_Rev_9 Setup

ADiS16350_Eval_Rev_9 Setup was completed successfully.

OK

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ADIS16350 Demonstration Software Installation

Installation Steps (continued)

7. **Open the newly created directory and double-click onto "giveio.exe"**

8. **Click "Install," then " IAgree"**
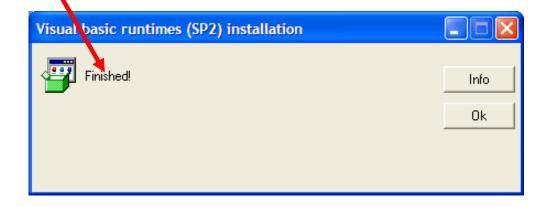
Installation Steps (continued)

9. Click "yes"

10. Giveio Driver complete

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ADIS1636x Installation on ADISUSBZ

Installation Steps (continued)

11. Install ADIS1636xBMLZ on ADISUSBZ
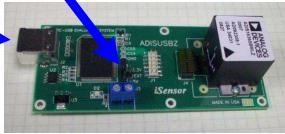
1. **Remove ribbon cable & (1) 2mm screw**

2. **Place ADIS1636xBMLZ using silk on ADISUSBZ**

3. **Slide ADIS1636xBMLZ onto screw head. Screw may need loosening**

4. **Secure ADIS1636xBMLZ using 2 M6x2mm pan head screws (provided) between two tabs**

5. **Align ADIS1636xBMLZ connector over J4 on ADISUSBZ and press it down to make connection**

6. **Change JP1 from "+3.3V" option to "+5V" option**
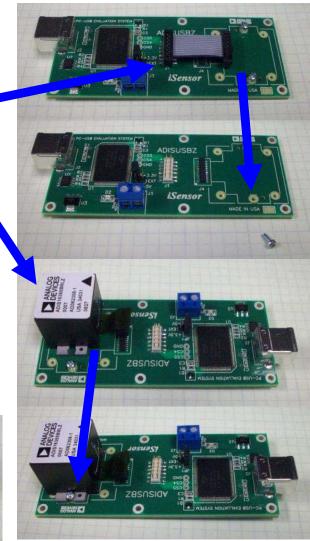
12. Plug in USB cable

CAUTION

DO NOT PULL ON THE ADIS1636x BODY TO BREAK THE CONNECTION WITH THE MATING CONNECTOR. WHEN DISCONNECTING, BREAK THE CONNECTION BY USING A SMALL SLOTTED SCREWDRIVER TO PRY THE CONNECTOR UP BEFORE REMOVING SCREWS

The flex circuit can break when mishandled and in most cases, repair is impossible. ADI does not offer repair or replacement service for broken flex and encourages appropriate care when handling the flex.

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MCP USB Driver Installation

Installation Steps (continued)

13. USB Driver screen will pop-up Click "Next" to start this process

14. Then click on "Continue Anyway"

Found New Hardware Wizard
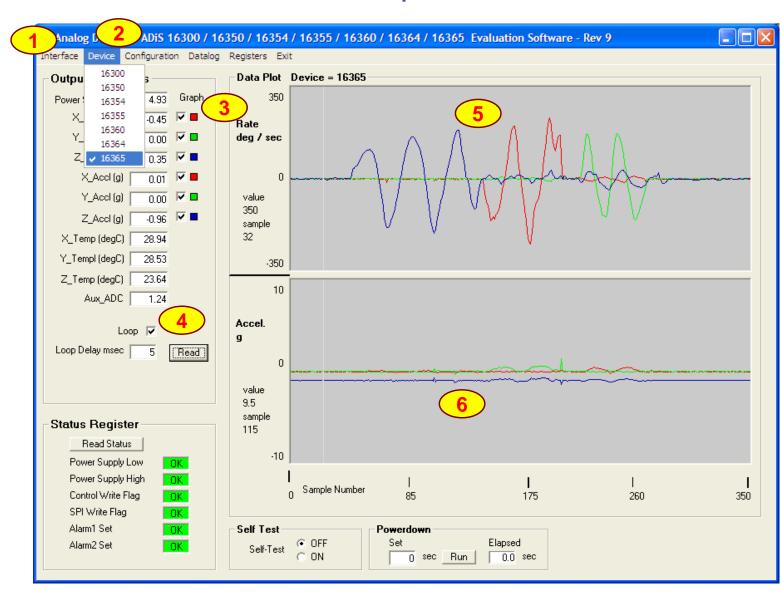
Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

MCP USB EVAL

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

○ Install the software automatically (Recommended)
○ Install from a list or specific location (Advanced)

Click Next to continue.

[< Back] [Next >] [Cancel]

Hardware Installation

The software you are installing for this hardware:

MCP USB EVAL

has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.

[Continue Anyway] [STOP Installation]

This process may repeat. Just follow the instructions and allow it to go through one more time. After completing this, then the devices is ready for test.
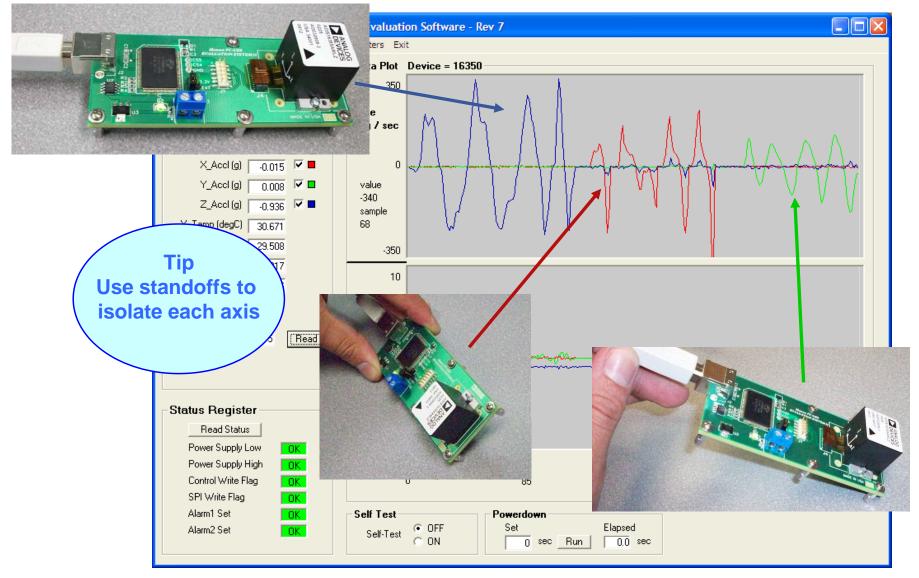
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ADIS16350 Software Tips

1. **Click on "Interface" and select USB, then OK when the pop-up window shows the USB device is connected.**

2. **Click on device to select part number for device under test**

3. **Select which sensor outputs to monitor on the graph.**

4. **Start on-screen log**

5. **Use the ADISUSBZ edges to confine rotation to one axis and compare it with the axis labels on the part (see white lines near flex exit from body)**

6. **Lay sensor flat on table, then turn it upside down to see change in z-axis accelerometer output (upside down response not shown in graph here)**

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ADIS16350 Demonstration Tips – Look at each axis

Tip
Use standoffs to isolate each axis

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ADIS16350 Evaluation Software, Calibration Menu Features

1. From the main menu, click on Configuration, then on Calibration to reach this menu.

2. Use Auto Null Run button to do a quick offset calibration.

3. Use Precision Auto Null to execute this option inside the ADIS1636x, which takes a 30-second average to produce these numbers. Keep the device still and away from vibration and thermal variation during this 30 second period.

4. Use the Flash Memory Register Update to store settings in non-volatile flash.

5. Use the Restore Factory Calibration to return all of these factors to zero.

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1. **From the main menu, click on Configuration, then on Calibration to reach this menu.**

2. **Bias stability performance is typically best when using the maximum sample rate.**

3. **Use the on-board Bartlett Window Filter to reduce noise. Enter number of taps (power of 2 steps sizes), then click on update. Since the ADISUSBZ supports sample rates of 150-200SPS, start with at least 8 taps.**

4. **Digital and analog I/O channel configuration options.**

5. **Use the Flash Memory Register Update to store settings in non-volatile flash.**

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ADIS16350 Evaluation Software, Data log Menu

1. Set the total number of samples.

2. Set the inertial sensor channels to monitor.

3. When the data log is in process, a message will appear in this location until the data collection process has completed.

CONTACTS:

- **APPLICATIONS ENGINEER:**   Mark Looney
  mark.looney@analog.com
  1-336-605-4139

- **MARKETING:**   Bob Scannell
  bob.scannell@analog.com
  1-336-605-4031

MORE INFORMATION ON iSENSOR EVALATION TOOLS:

- www.analog.com/isensor-evaluation

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