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Demo/Evaluation Tips for the ADIS1640x

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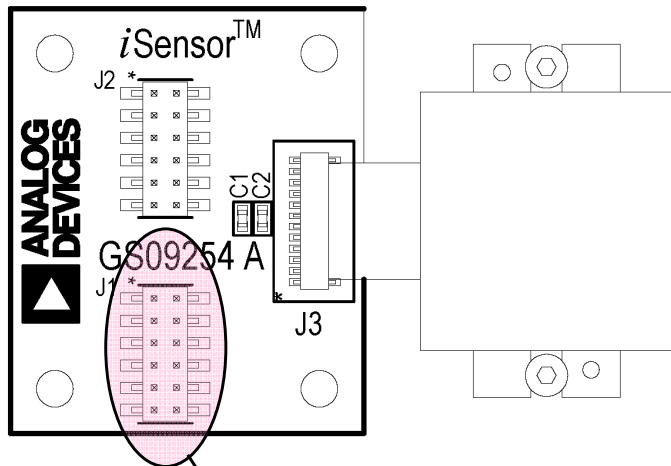# Evaluation Tool Overview

1. **Interface Connector for those that need to integrate this on a new PCB**
   - ◆ The ADIS1640xAMLZ 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 for simpler connection to an existing processor/system PCB.**
   - ◆ These boards provide a simple connector translation from the 1mm pitch on the ADIS1640xBMLZ 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: **ADIS16405/PCBZ**

   ADIS16405/PCBZ Shown Here

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 ADIS1640x functions and performance.
   - ◆ Supports approximately 150-200SPS sample rate.
   - ◆ CAUTION: This system DOES NOT provide an appropriate framework for developing a system around the ADIS1640xBMLZ. NO source code or code development support is included with this kit.
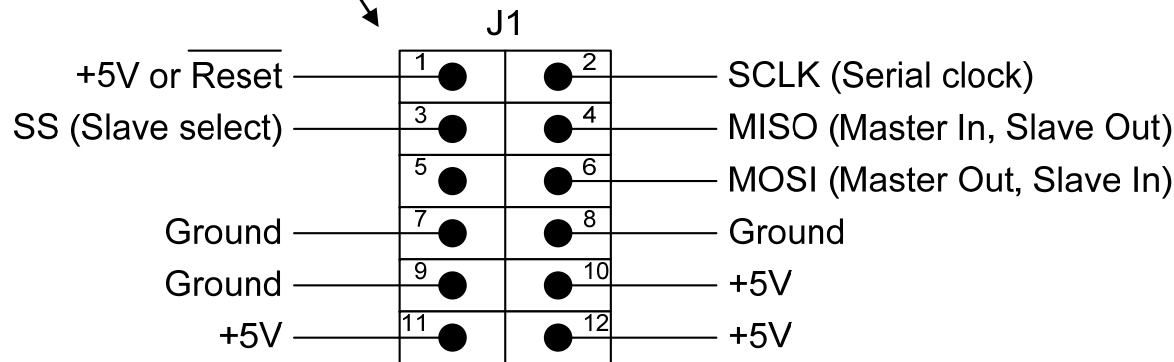   - ◆ Part number for ordering: **ADISUSBZ**
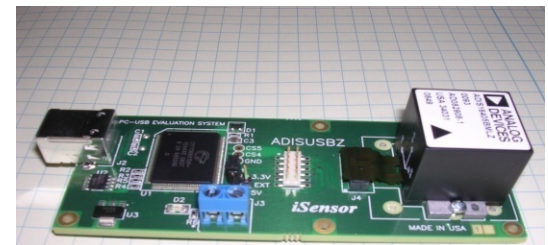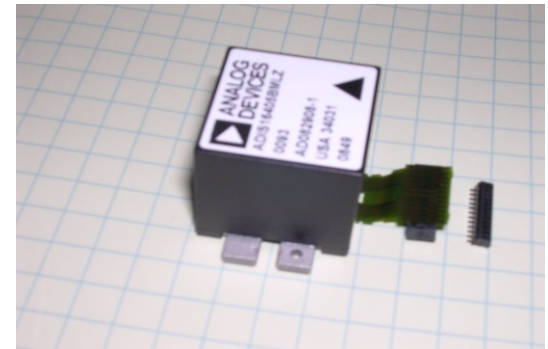
   ADISUSBZ & ADIS16405BMLZ Shown Here (Sold separately)

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Hooking up to the ADIS1640x/PCBZ

J1 Ribbon Cable Interface Parts
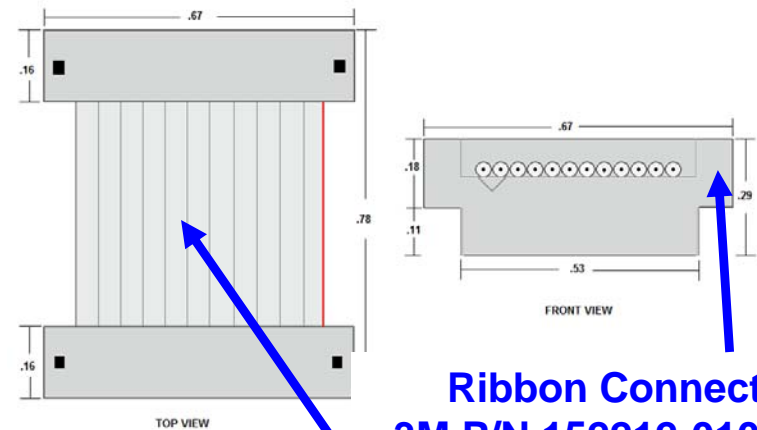
**Ribbon Connector
3M P/N 152212-0100-GB**

**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

*i*Sensor™ J2 C1 C2 GS09254 A J1 J3

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ADISUSBZ-based Evaluation

The ADIS16405ES installation package will load the appropriate drivers and prepare a PC to use the ADIS1640x evaluation software.

1. **Download 405ES.zip into a temporary directory and unpack its contents.**
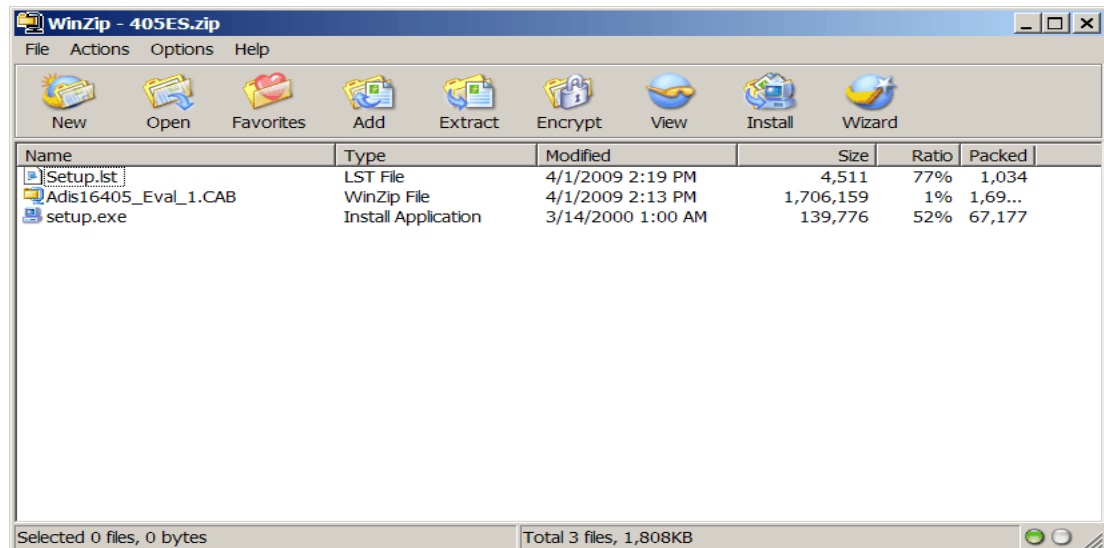   http://www.analog.com/static/imported-files/eval_boards/405ES.zip

   OR GO TO:

   www.analog.com/isensor-evaluation,
   then click on EVALUATION SOFTWARE DOWNLOADS
   then click on 405ES.zip option

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

Name	Type	Modified	Size	Ratio	Packed
Setup.lst	LST File	4/1/2009 2:19 PM	4,511	77%	1,034
Adis16405_Eval_1.CAB	WinZip File	4/1/2009 2:13 PM	1,706,159	1%	1,69...
setup.exe	Install Application	3/14/2000 1:00 AM	139,776	52%	67,177

Selected 0 files, 0 bytes   Total 3 files, 1,808KB
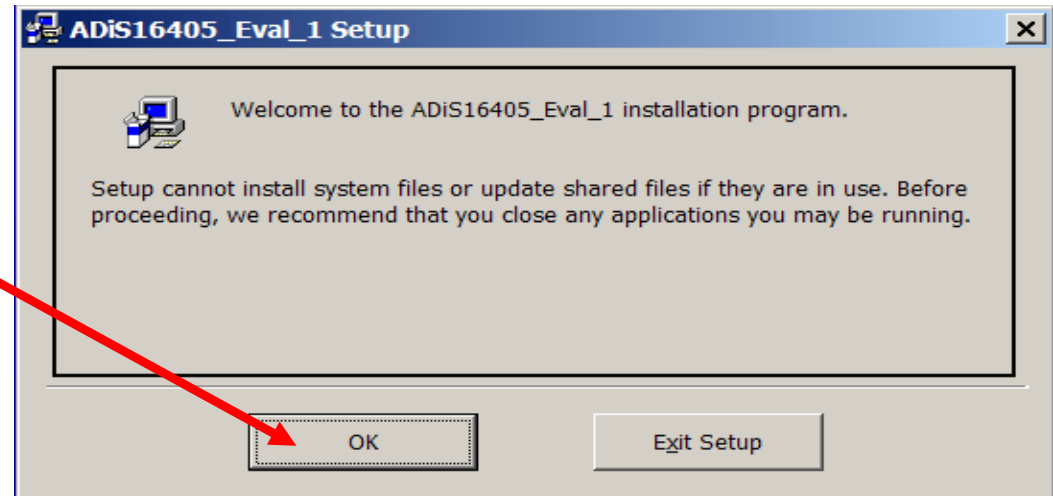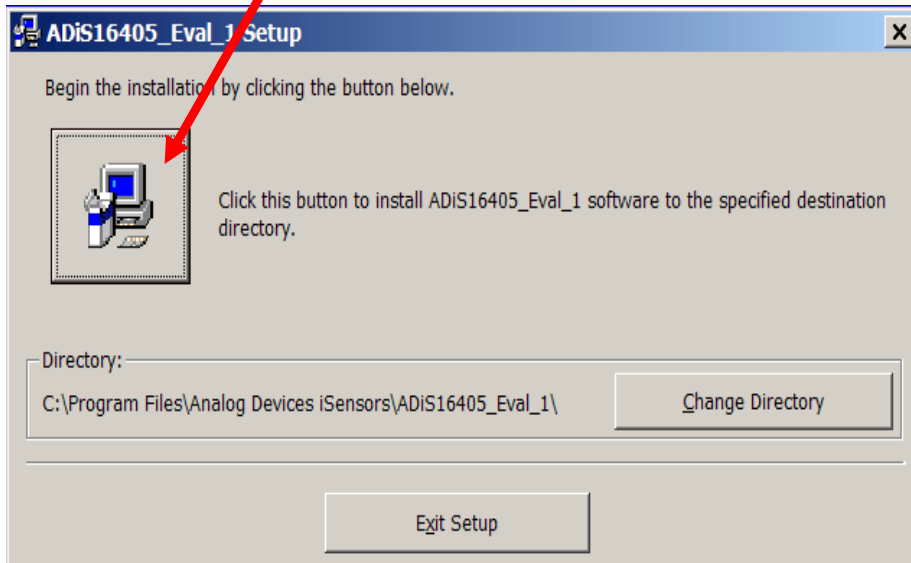
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ADIS1640X Demonstration Software Installation

Installation Steps (continued)

3. **Click OK on next screen**
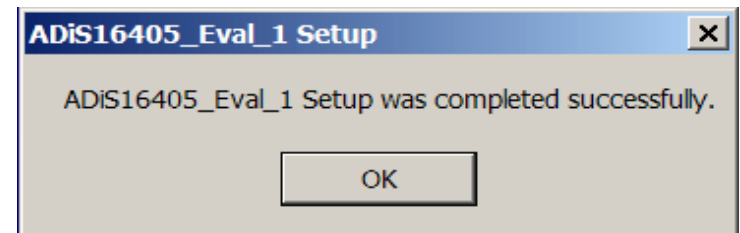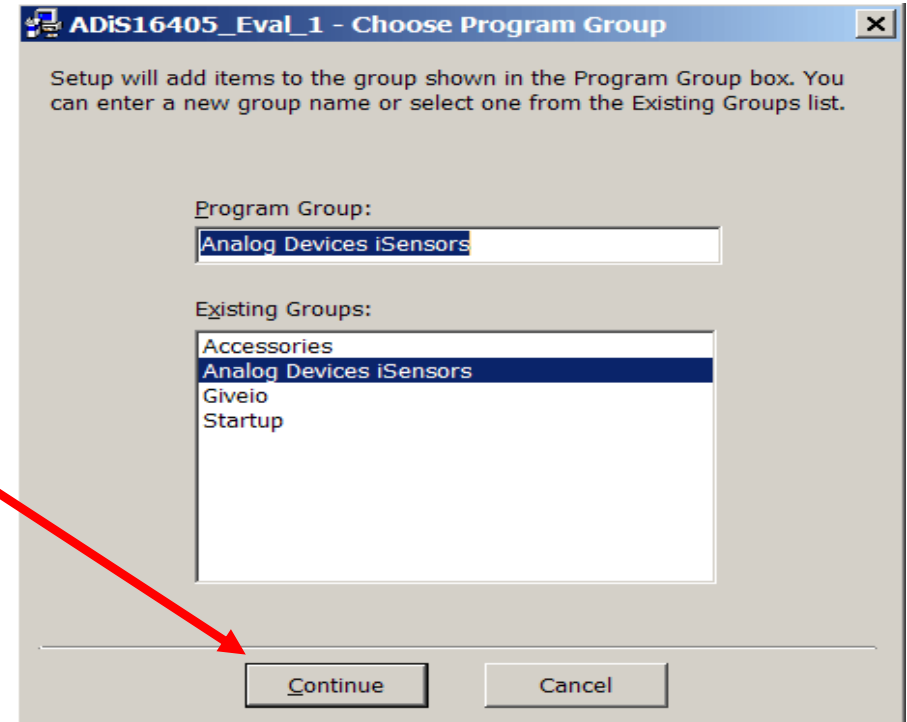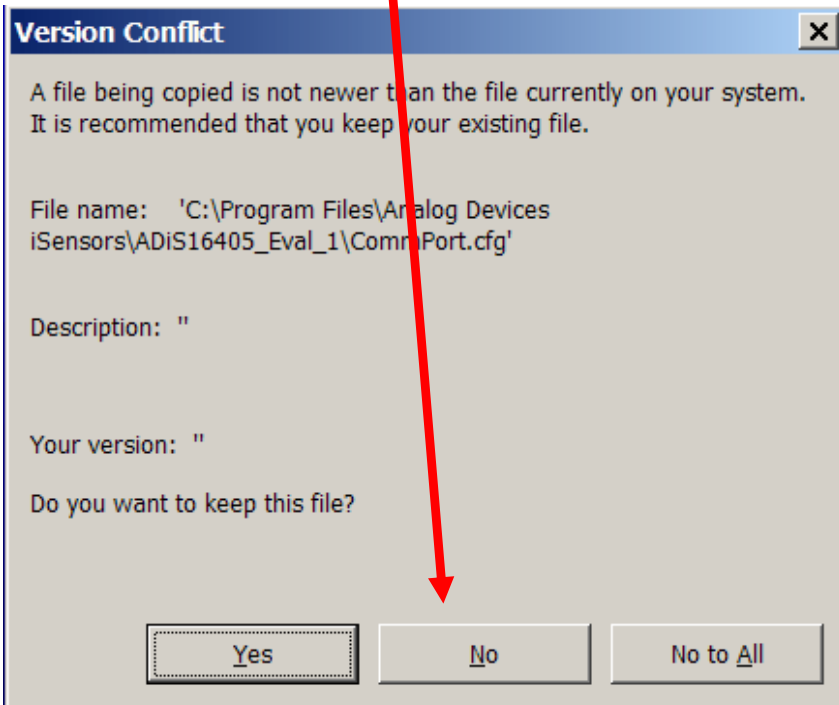
4. **Click here to start installation**

Installation Steps (continued)

5. Click Continue

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

ADiS16405_Eval_1 - 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
Analog Devices iSensors
Giveio
Startup

[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\ADiS16405_Eval_1\CommPort.cfg'

Description: "

Your version: "

Do you want to keep this file?

[Yes]   [No]   [No to All]

ADiS16405_Eval_1 Setup

ADiS16405_Eval_1 Setup was completed successfully.

[OK]

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Installation Steps (continued)

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

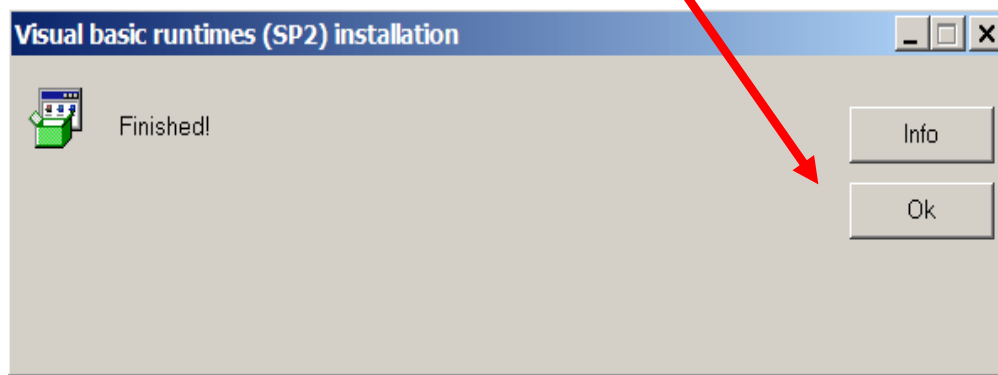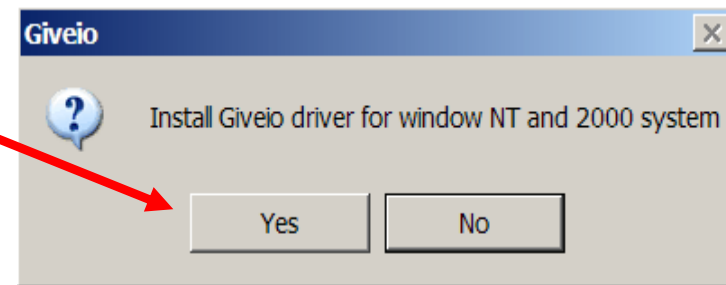8. **Click "Install," then " I Agree"**
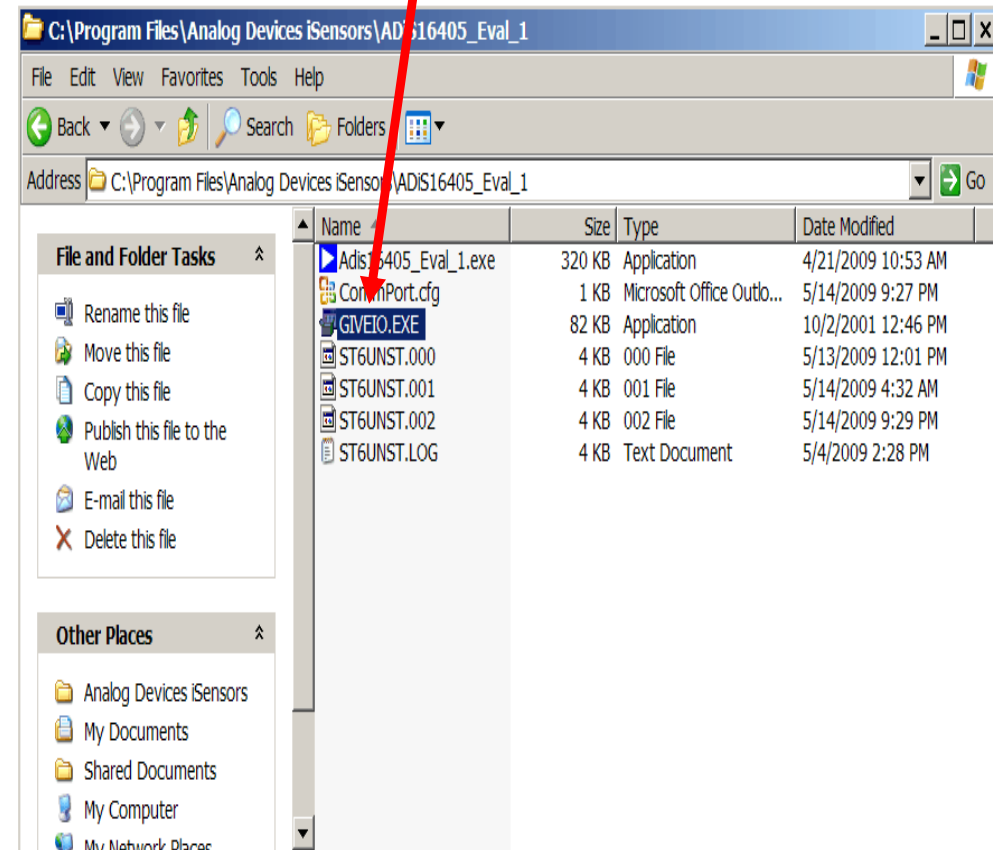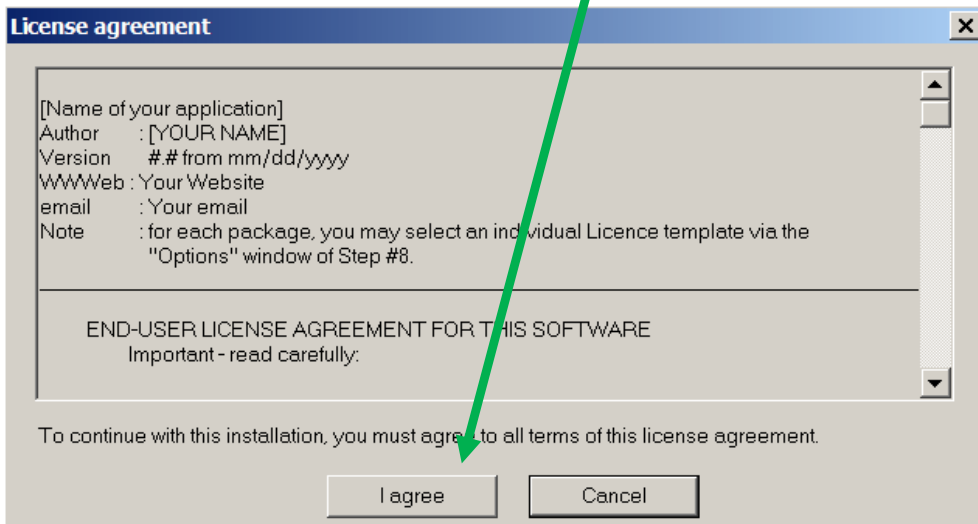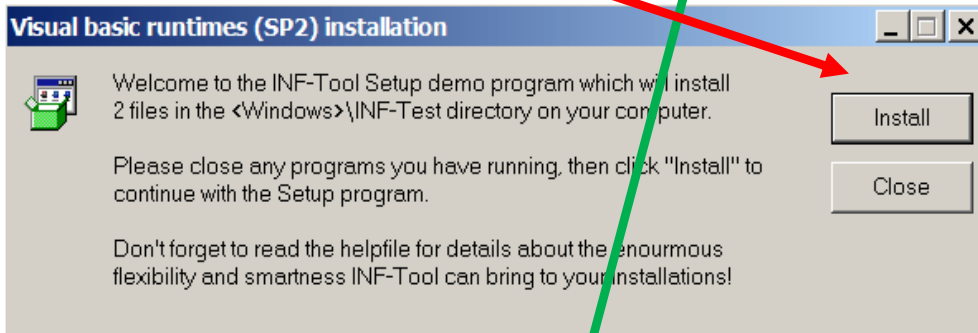
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ADIS1640X Demonstration Software Installation

Installation Steps (continued)

9. Click "yes"

10. Giveio Driver complete

Giveio

? Install Giveio driver for window NT and 2000 system

    Yes   No

Visual basic runtimes (SP2) installation

Finished!

Info

Ok

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ADIS1640x Installation on ADISUSBZ

Installation Steps (continued)

11. Install ADIS1640xBMLZ on ADISUSBZ

    1.   **Remove ribbon cable & 2mm screws**

    2.   **Place ADIS1640xBMLZ using silk on ADISUSBZ**

    3.   **Secure ADIS1640xBMLZ using 2 M2mmx0.4mm pan head screws (provided) between two tabs**

    4.   **Align ADIS1640xBMLZ connector over J4 on ADISUSBZ and press it down to make connection**

    5.   **Change JP1 from "+3.3V" option to "+5V" option**

12. Plug in USB cable
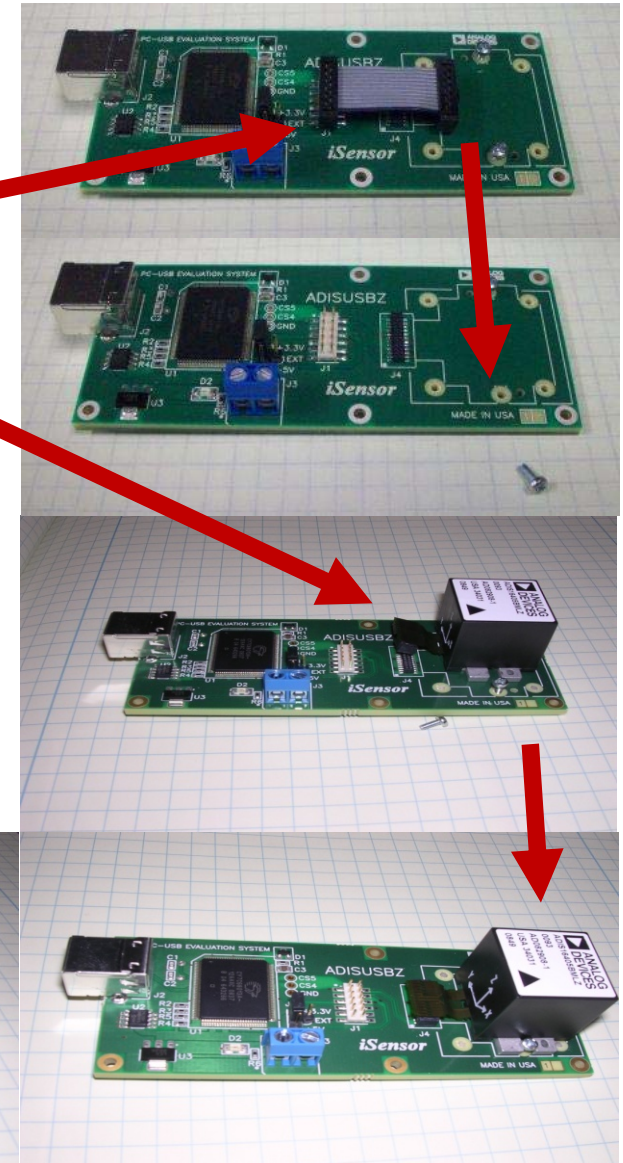
CAUTION

DO NOT PULL ON THE ADIS1640x 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.
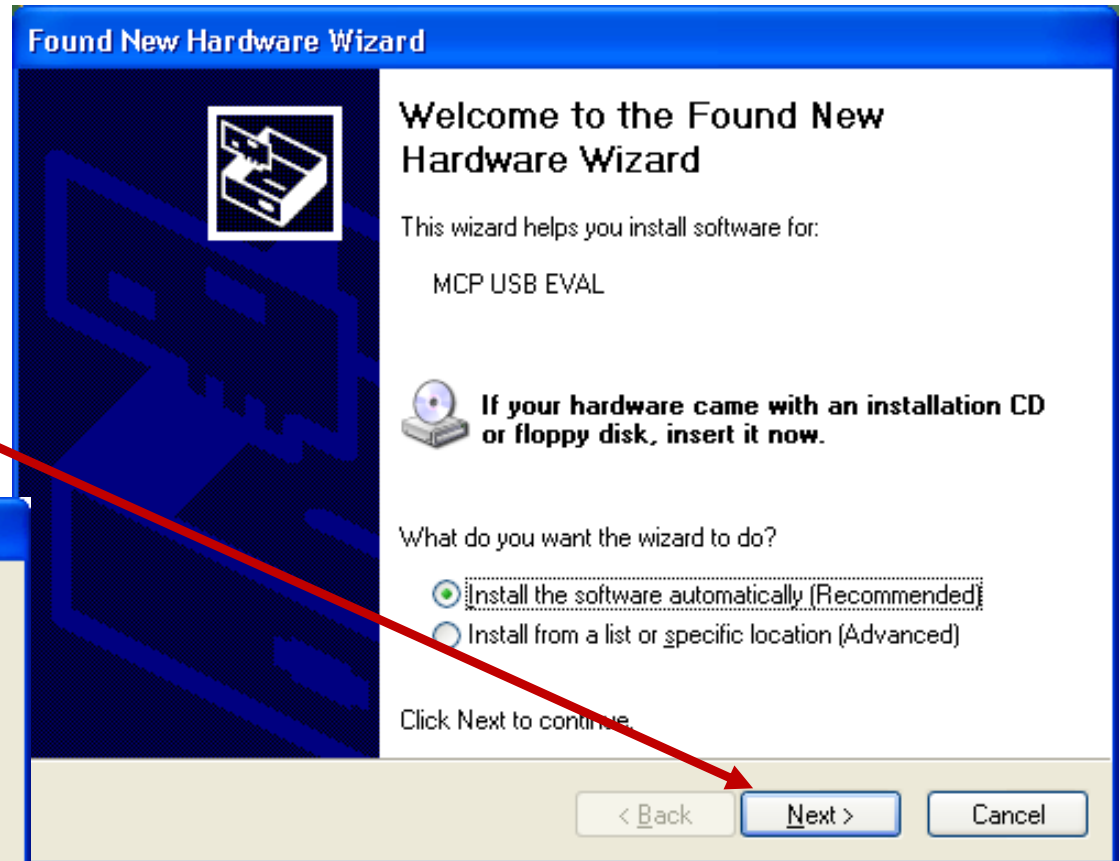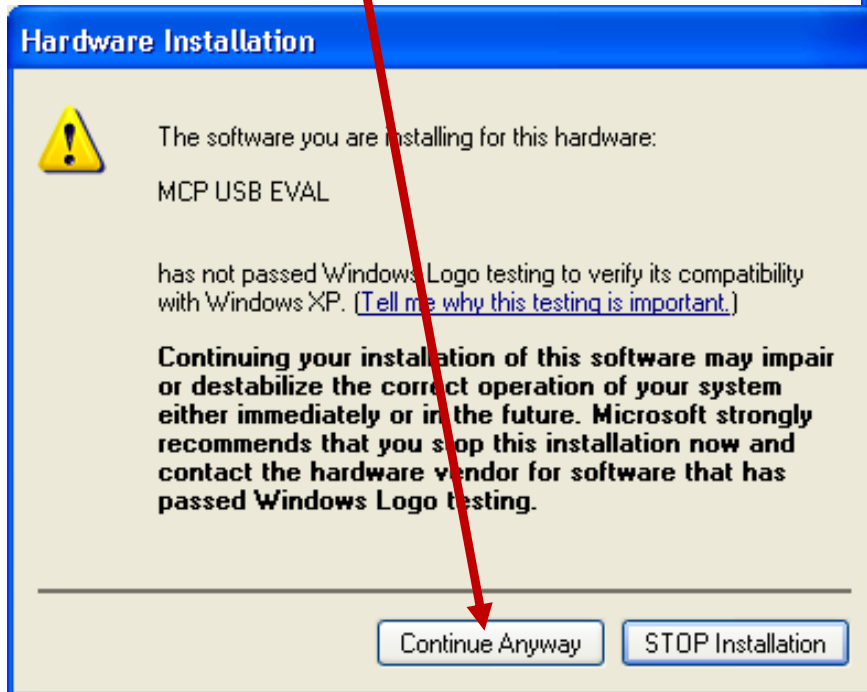
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MCP USB Driver Installation

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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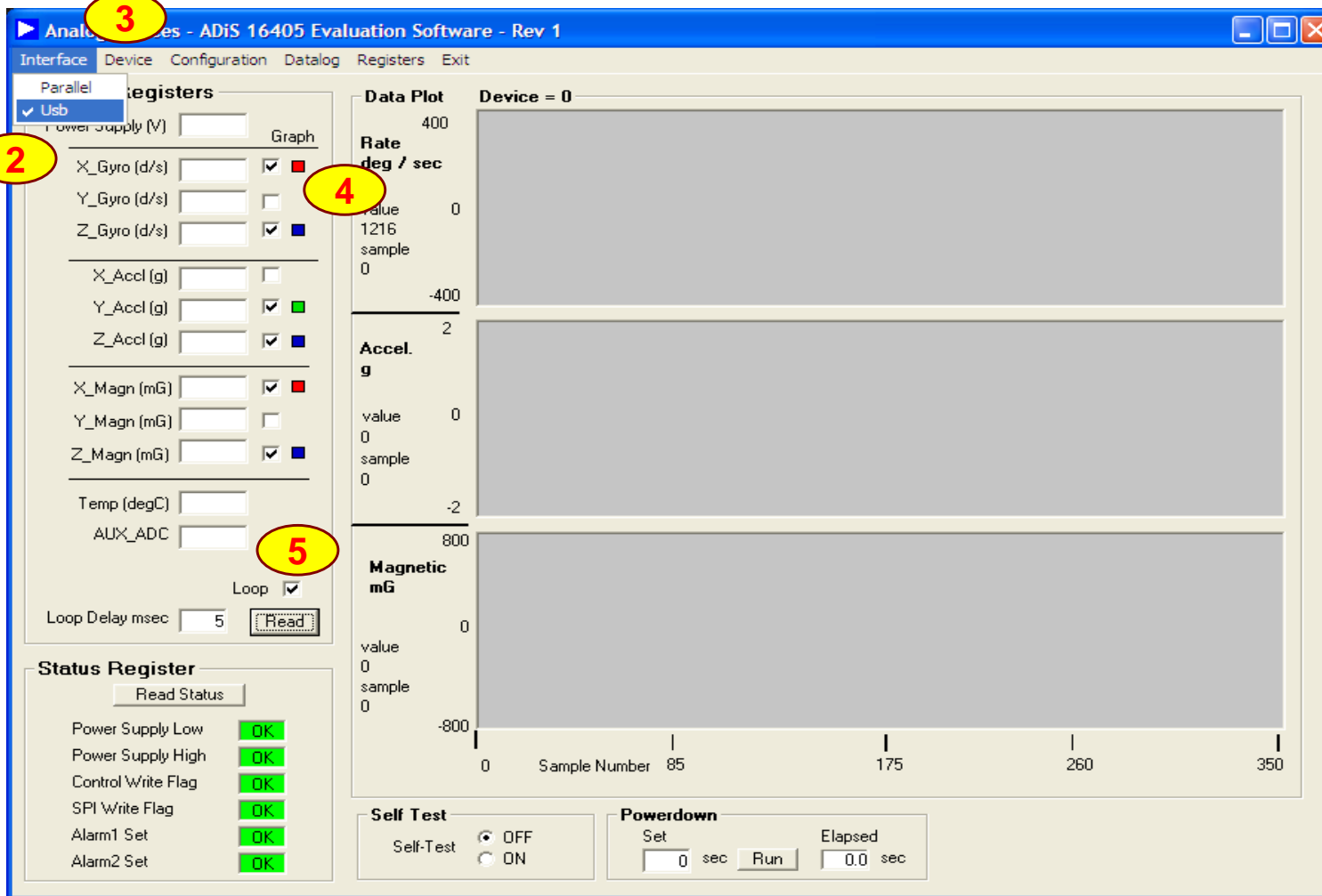## ADIS1640X Software Tips for the ADIS16405
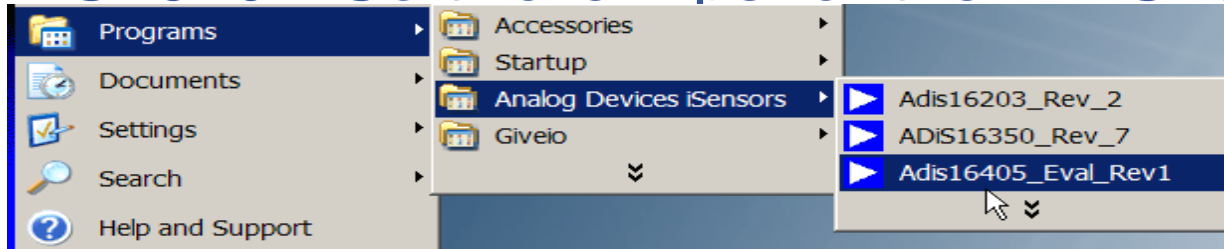
1. **Locate ADIS16405_Rev1 Program from the computer start menu.**

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

3. **Click on device to select part number for device under test**
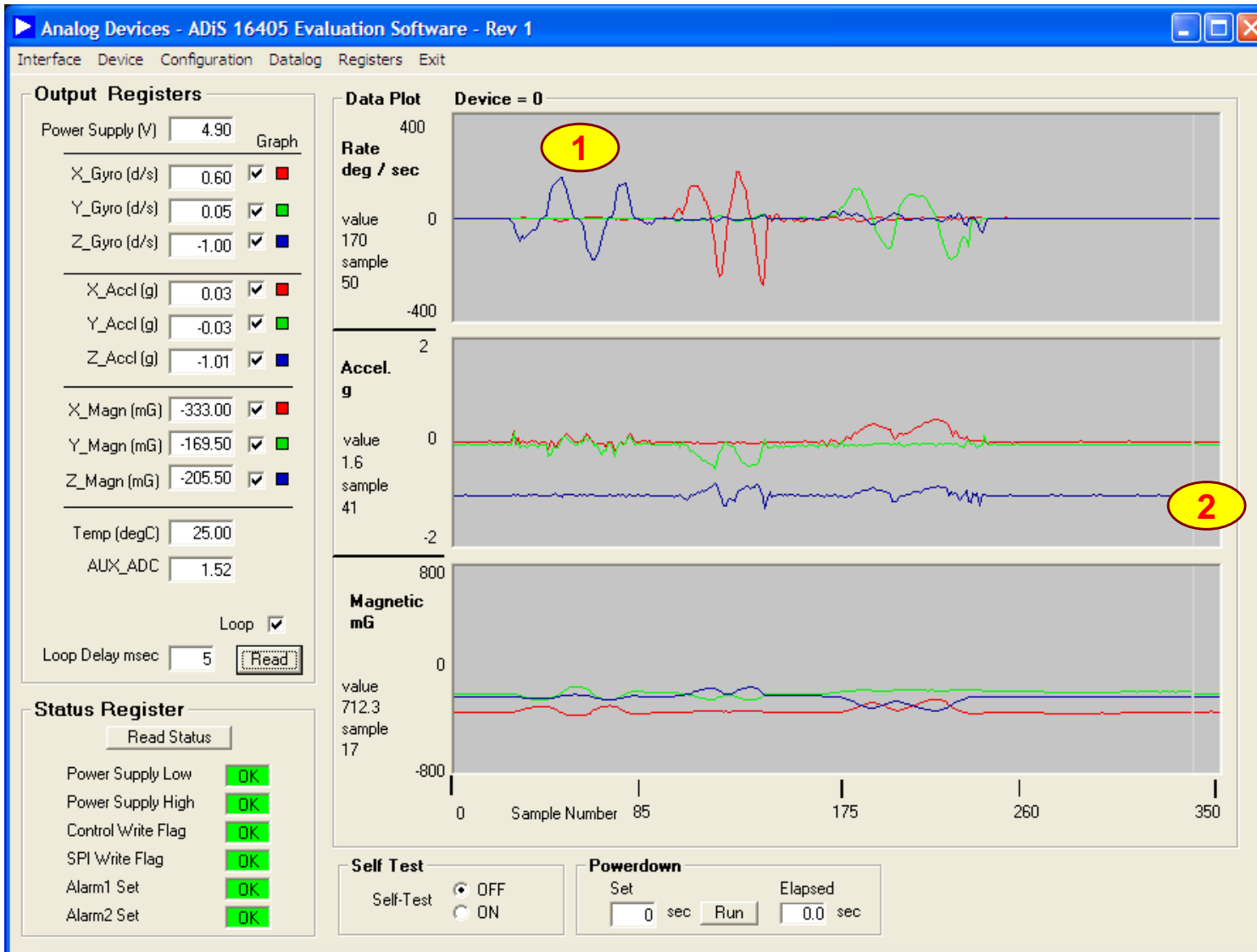
4. **Select which sensor outputs to monitor on the graph.**

5. **Start on-screen graphing by selecting loop and then Read button.**

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ADIS1640X Software Tips for the ADIS16405

1. **Use the axis markings on the device to determine rotation response with respect to the response on screen.**

2. **Notice the accelerometer response to gravity.**

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ADIS16405 Demonstration Tips – Gyro response

Tip
Use edges of PCB to isolate each axis

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ADIS1640X 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 ADIS16405, 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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ADIS1640X Evaluation Software, Operation Menu Features

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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ADIS1640X 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 (below) will appear in this location until the data collection process has completed.**

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ADIS1640X Evaluation Software, Data log Menu

1

1. **Access Register Menu information.**

2. **Pick a register for Read/Write.**

3. **Read or print user Registers.**

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MORE INFORMATION ON iSENSOR EVALATION TOOLS:

- www.analog.com/isensor-evaluation