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ADIS16135 Evaluation Tool Overview



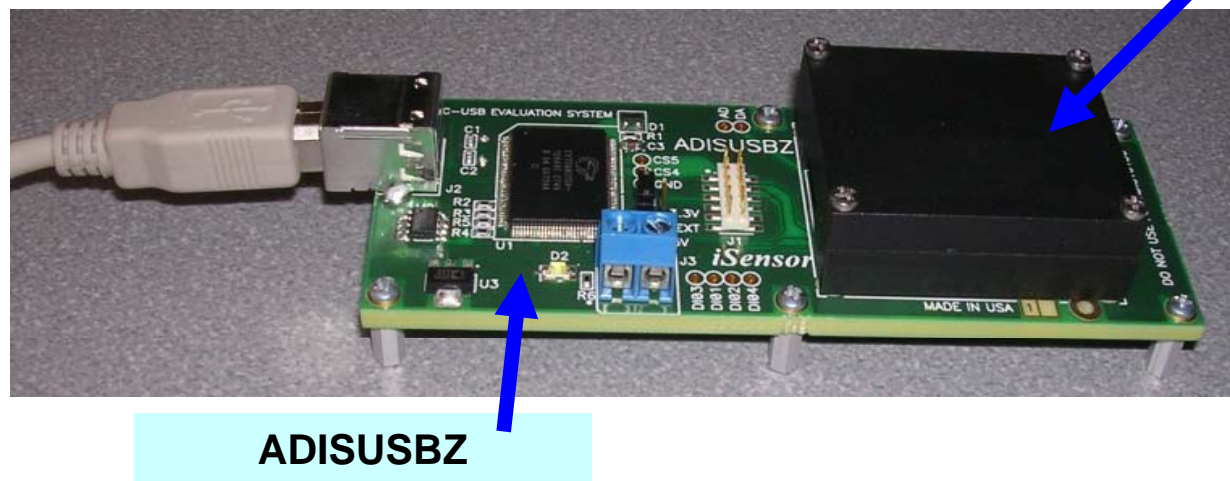
Mark Looney
iSensor® Application Engineer
January 22, 2010



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PC-Based Evaluation

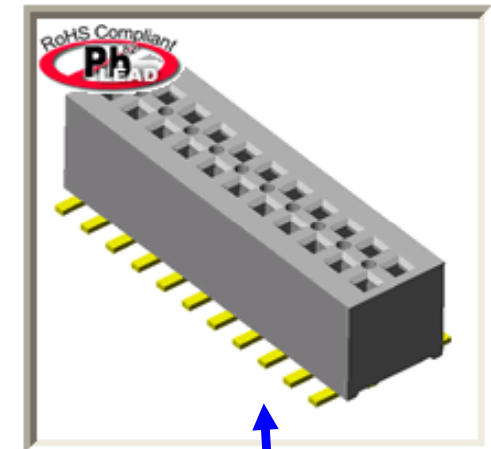
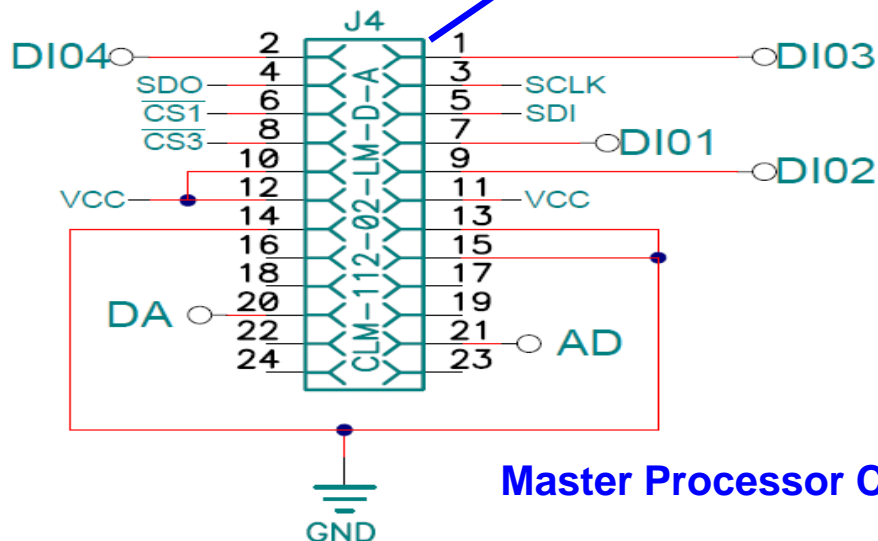
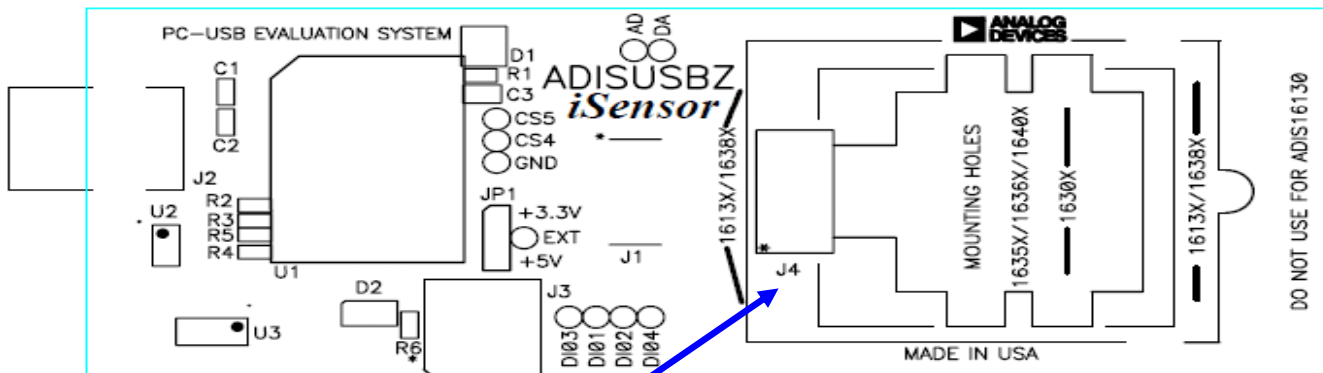
- ◆ **The ADISUSBZ provides PC-based demonstration and basic evaluation support for the ADIS16135BMLZ.**
 - ◆ This system provides a simple USB interface, along with a simple graphical user interface (GUI) package, for evaluating most of the ADIS16135 functions and performance.
 - ◆ This system is most useful for basic data collection and performance validation.
 - ◆ This is not a real-time development system. No SDK available.
 - ◆ Part number for ordering: (1) ADIS16135BMLZ, (1) ADISUSBZ



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Hooking up to the ADIS16135/PCBZ

Need to integrate J4 to a new PCB design?



ADISEVALUSBZ-135 uses the following J4 connector from Samtec:

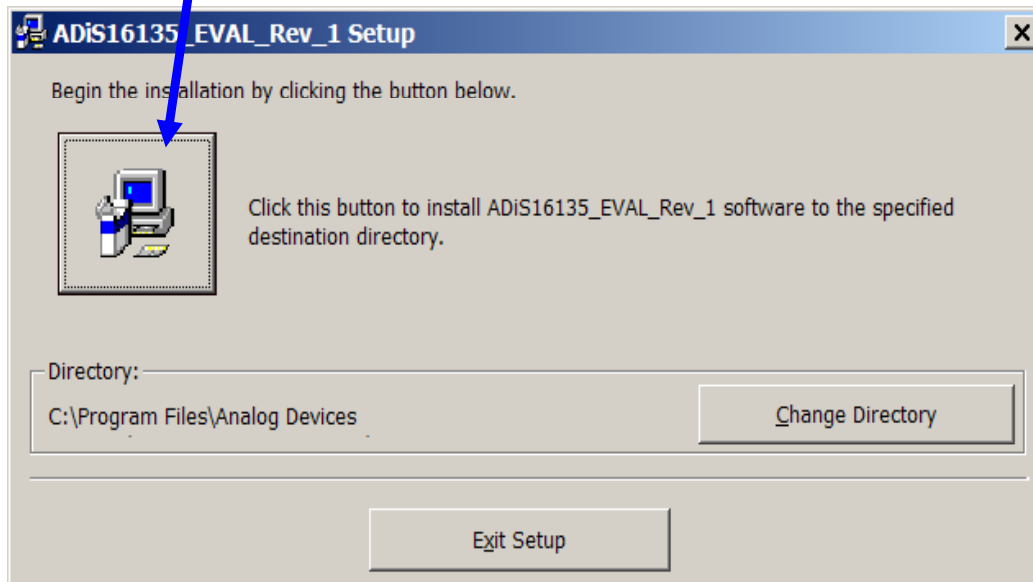
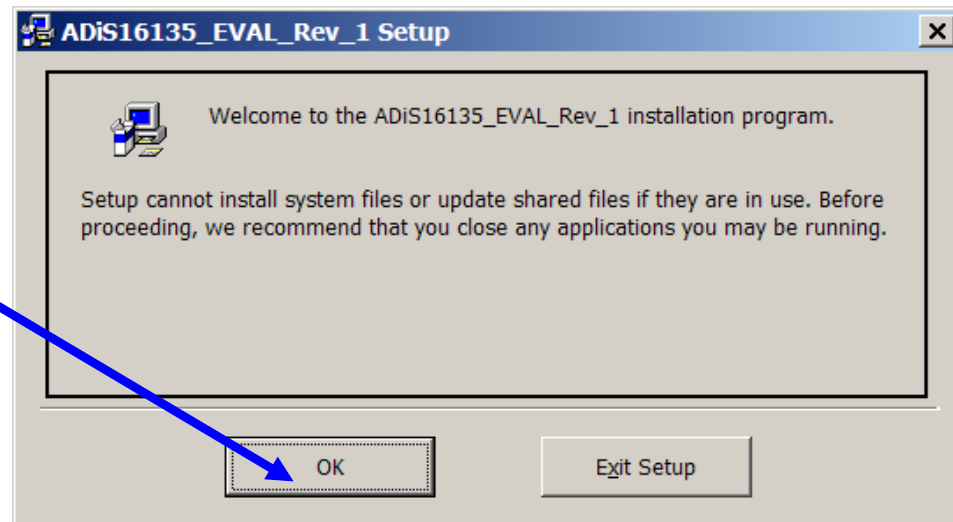
CLM-112-02-LM-D-A

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ADIS16135 Demonstration Software Installation

Installation Steps (continued)

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



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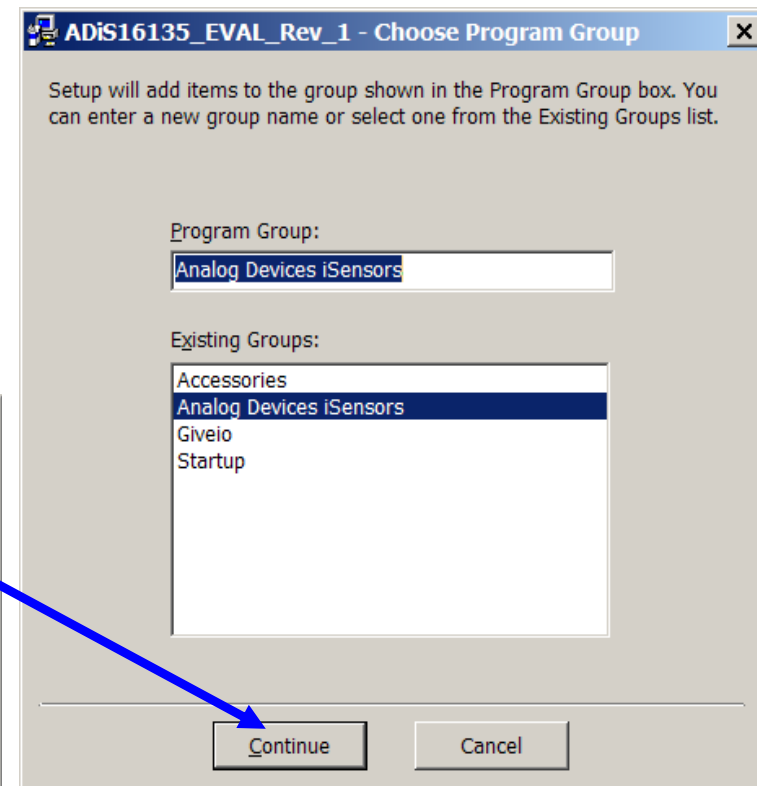
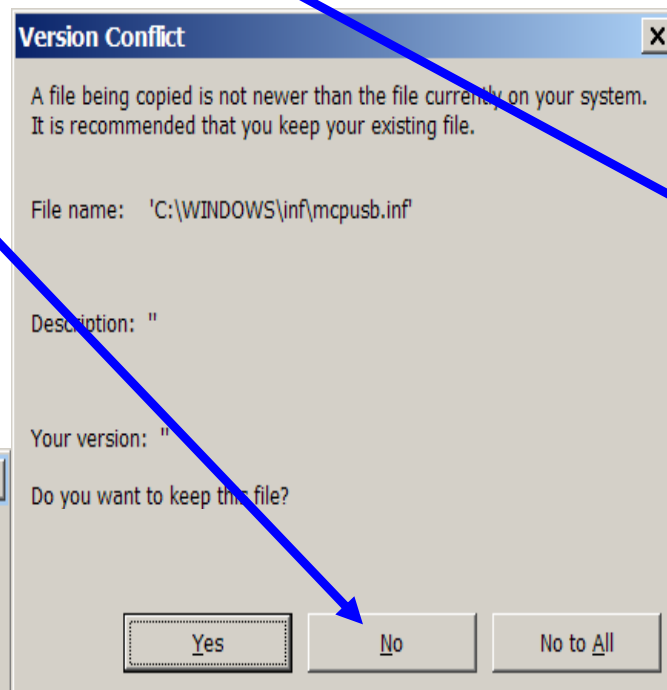
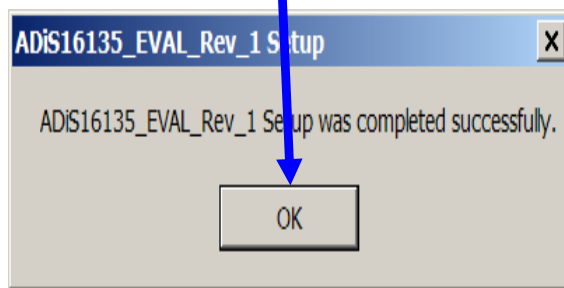
ADIS163135 Demonstration Software Installation

Installation Steps (continued)

6. Click **Continue**

7. If this message comes up, click on **No**

8. Click **OK**



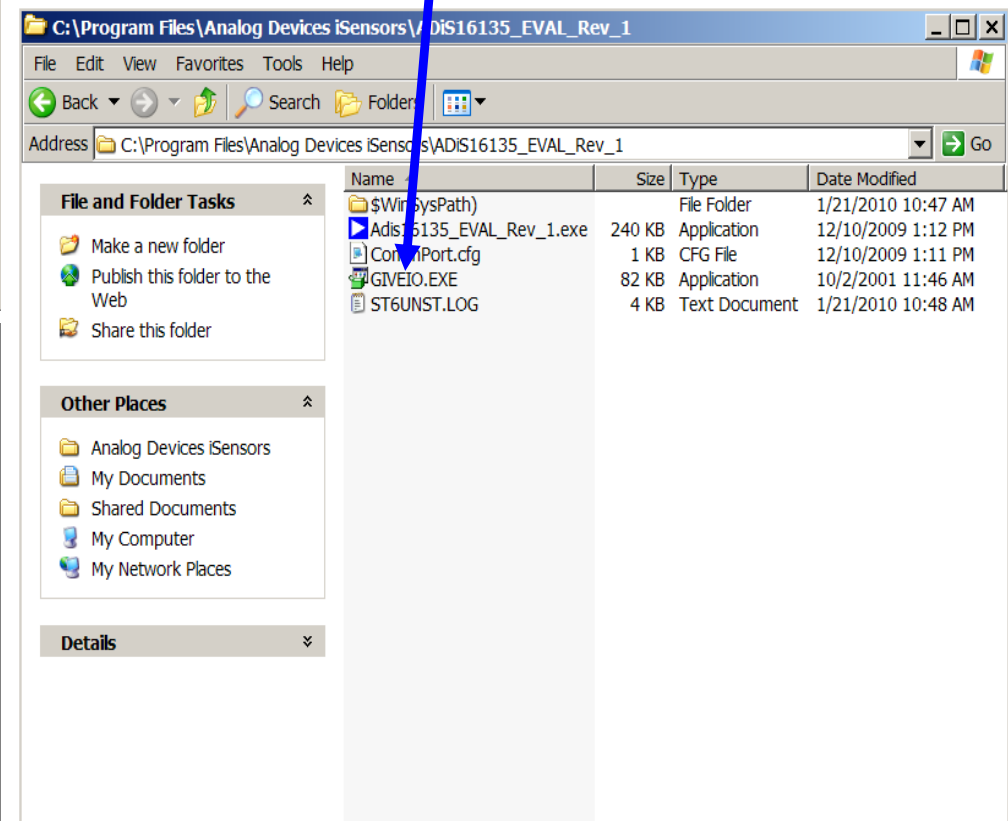
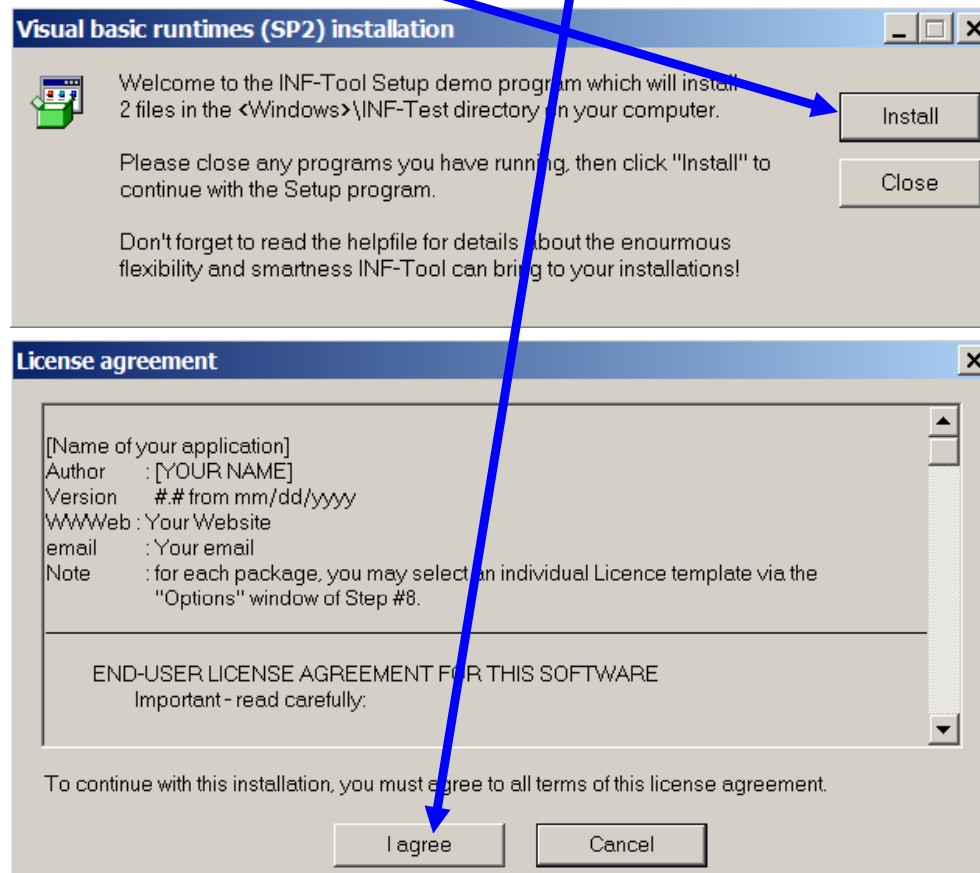
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ADIS16135 Demonstration Software Installation

Installation Steps (continued)

9. Open the newly created directory and double-click onto **GIVEIO.EXE**

10. Click **Install**, then **I agree**



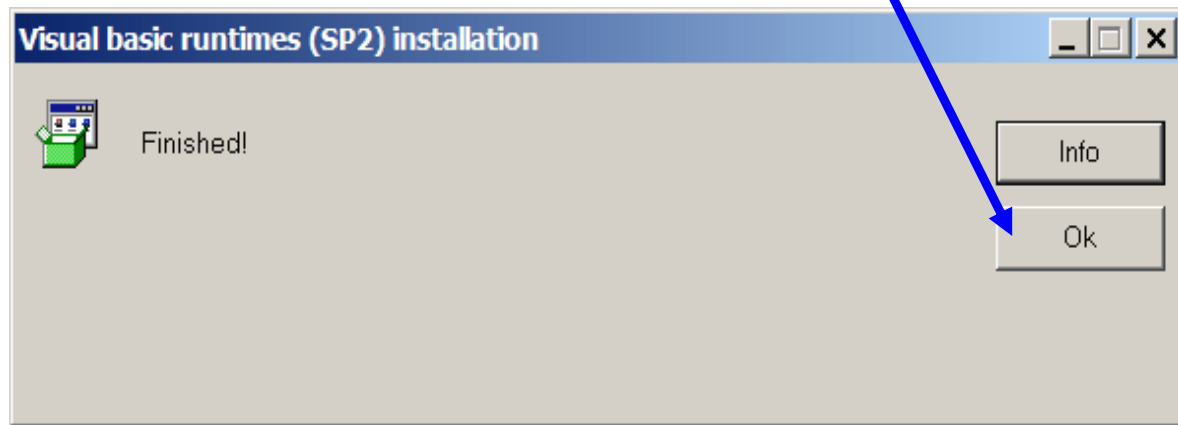
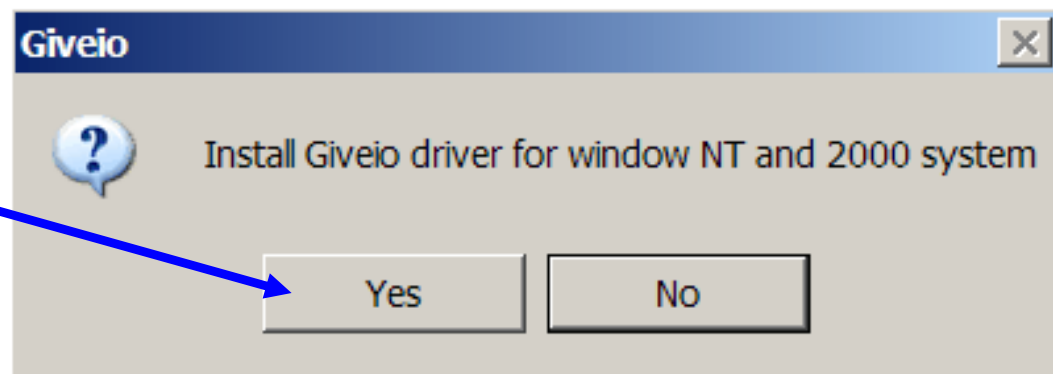
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ADIS16135 Demonstration Software Installation

Installation Steps (continued)

11. Click **Yes**

12. Giveio Driver complete, click **OK**



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ADIS16135BMLZ Installation on ADISEVALUSBZ-135

Installation Steps (continued)

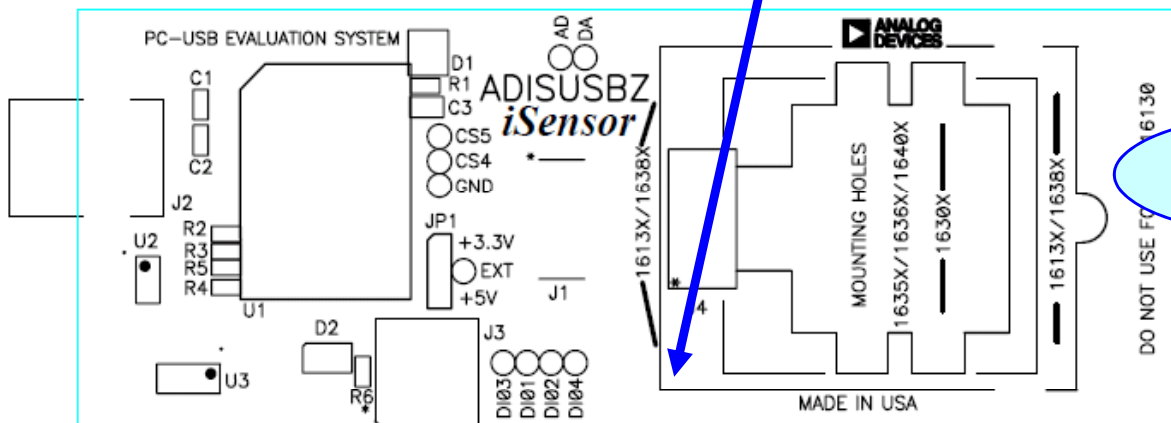
13. Install ADIS16135BMLZ on ADISEVALUSBZ
14. Remove ribbon cable and screws
15. Carefully insert the ADIS16135BMLZ into the J4 connector
16. Secure part with 2x18mm screws

1. Secure with
2x18mm screws

2. Attach
135/PCBZ to
J4 Connector

3. Verify JP1
set to +5V

4. Hook USB
cable up



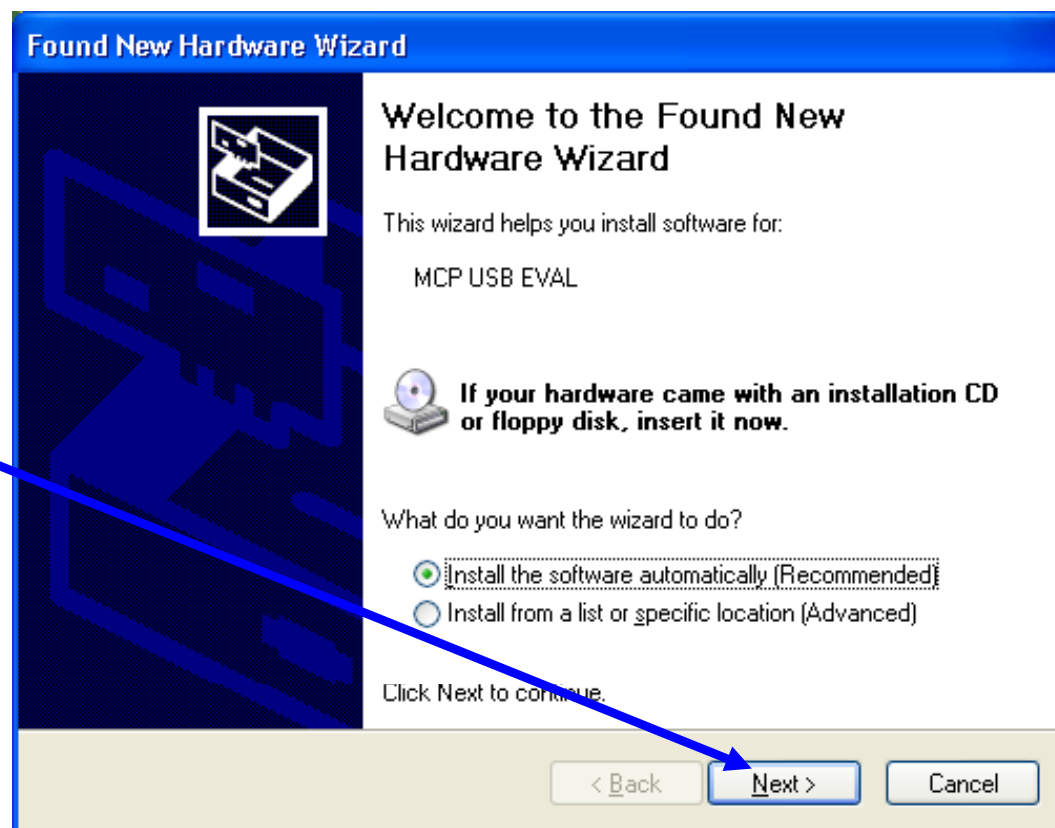
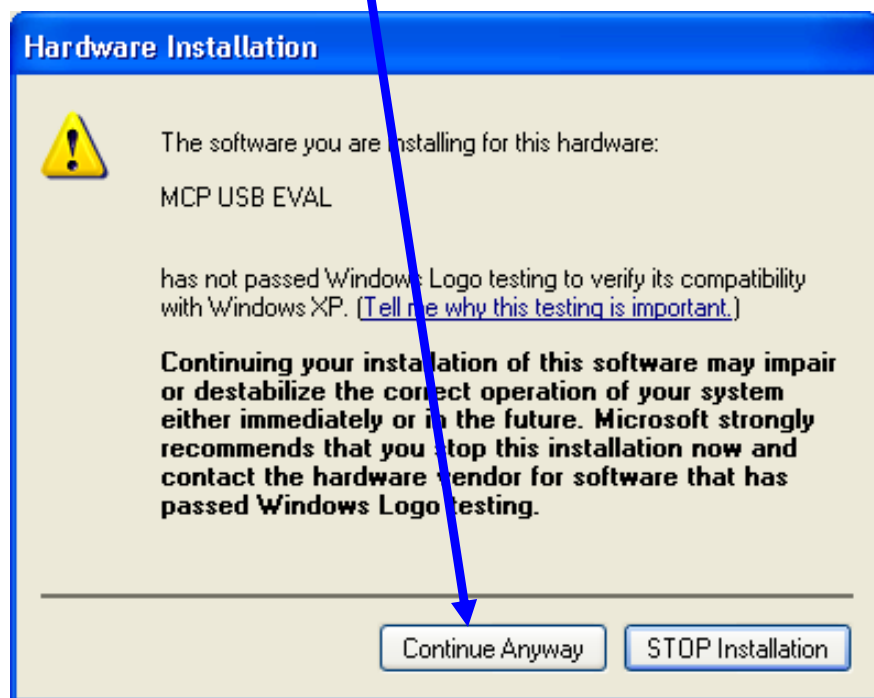
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ADIS16135 Demonstration Software Installation

Installation Steps (continued)

15. USB Driver screen will pop-up
Click **Next** to start this process

16. Then click on
Continue Anyway



This process will repeat for a second driver file. 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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ADIS16135 Demonstration Tips—Verify USB Driver

The screenshot shows the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' window. The 'Interface' menu is highlighted. A blue arrow points from a callout bubble to the 'Interface' menu. Another blue arrow points from a second callout bubble to the 'OK' button in the 'USB SPI Card Selection' dialog box.

#1 Click here to access setup

#2 Click OK to verify

Output Registers

Gyro_Out (d/s) ☒ Plot

Temp (degC) ☐

☒

Status Register

Power Supply Low ☒ OK

Control Register ☒ OK

SPI Write Flag ☒ OK

Gyro Overrange ☒ OK

Self Test ☒ OK

Flash Memory ☒ OK

Alarm1 Set ☒ OK

Alarm2 Set ☒ OK

Data Plot Device = 16135

Cursor (g) -293
sample # 215

Plot Scale

Sample Number 0 85 175 260 350

USB SPI Card Selection

Buffer Select

	Descriptor0	Rev	Speed
<input checked="" type="radio"/> EzUsb0	MCP SPI	0.1	2.0
<input type="radio"/> EzUsb1			
<input type="radio"/> EzUsb2			
<input type="radio"/> EzUsb3			
<input type="radio"/> None			

Self Test

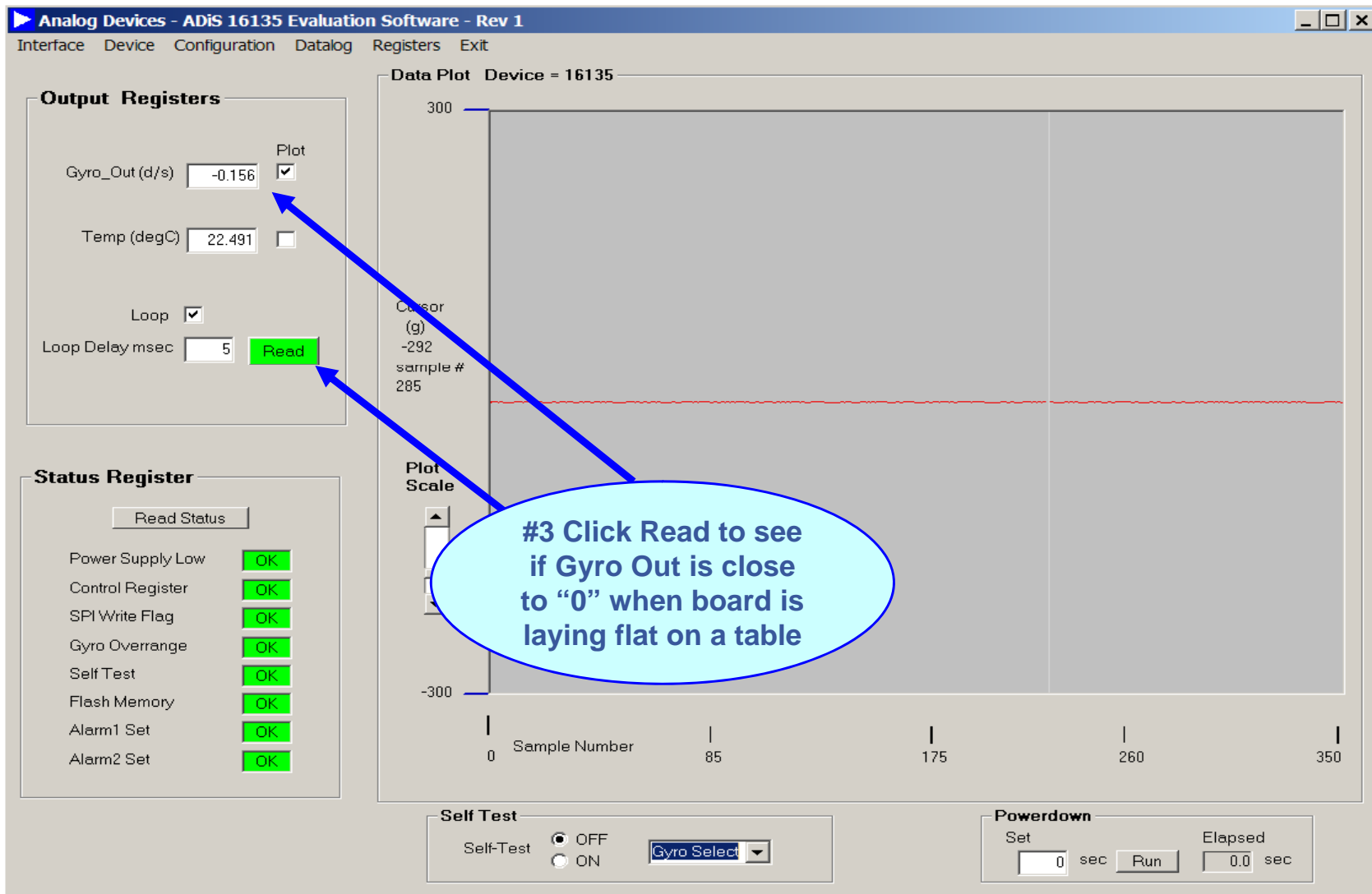
Self-Test ☒ OFF ☐ ON

Powerdown

Set sec Elapsed sec

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ADIS16135 Demonstration Tips— Initial Start up



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ADIS16135 Demonstration Tips—AUTO-Null

The screenshot displays the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' interface. The 'Configuration' window is active, showing 'Output Registers' and 'Status Register' on the left, a 'Data Plot' in the center, and a 'Calibration' window on the right. The 'Calibration' window has tabs for 'Automatic Features' and 'Manual Calibration Adjustment'. The 'Automatic Features' tab is selected, showing 'Restore Factory Calibration' and 'Auto Null' buttons. The 'Manual Calibration Adjustment' tab shows 'Gyroscope' settings for 'Offset' and 'Decimate'. A blue arrow points from the 'Configuration' window to the 'Calibration' window, and another blue arrow points from the 'Auto Null' button to the 'Flash Memory Register Update' button. A light blue oval contains the text: 'Select Configuration and Calibration'. Another light blue oval contains the text: 'While the part is flat on the table top click on Run button. When complete, click on Update, then Flash Memory Update.'

Output Registers

Gyro_Out (d/s) ☒ Plot

Temp (degC) ☐

Loop ☒

Status Register

Power Supply Low

Control Register

SPI Write Flag

Gyro Overrange

Self Test

Flash Memory

Alarm1 Set

Alarm2 Set

Calibration

Automatic Features

Restore Factory Calibration

Auto Null

Manual Calibration Adjustment

Gyroscope

Offset deg / sec

Decimate (0-16)

Flash Memory Register Update

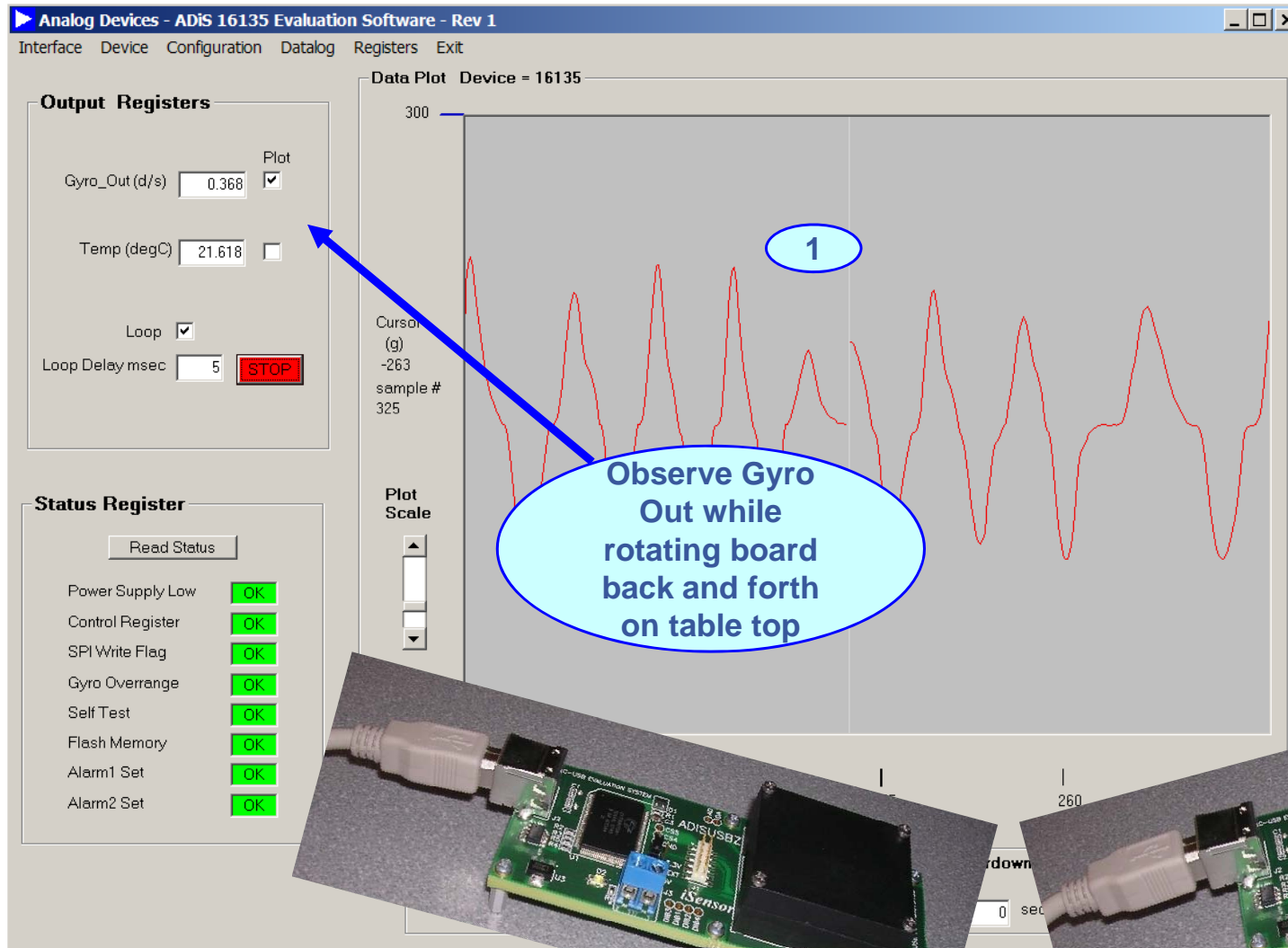
Set sec Elapsed sec

Self Test

Self-Test ☐ OFF ☐ ON

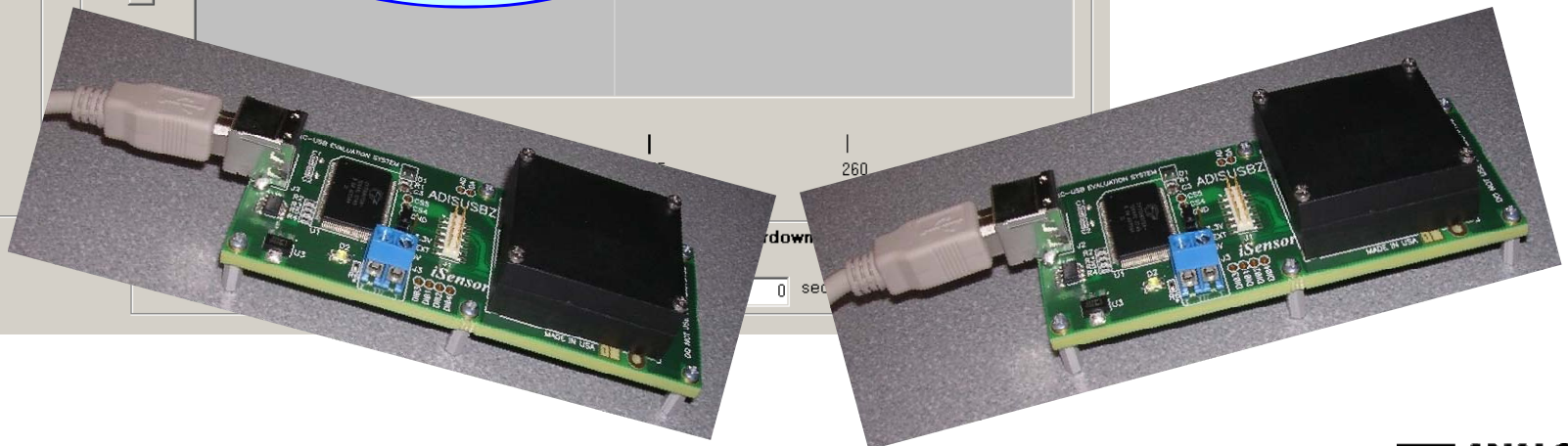
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ADIS16135 Demonstration Tips—Gyro



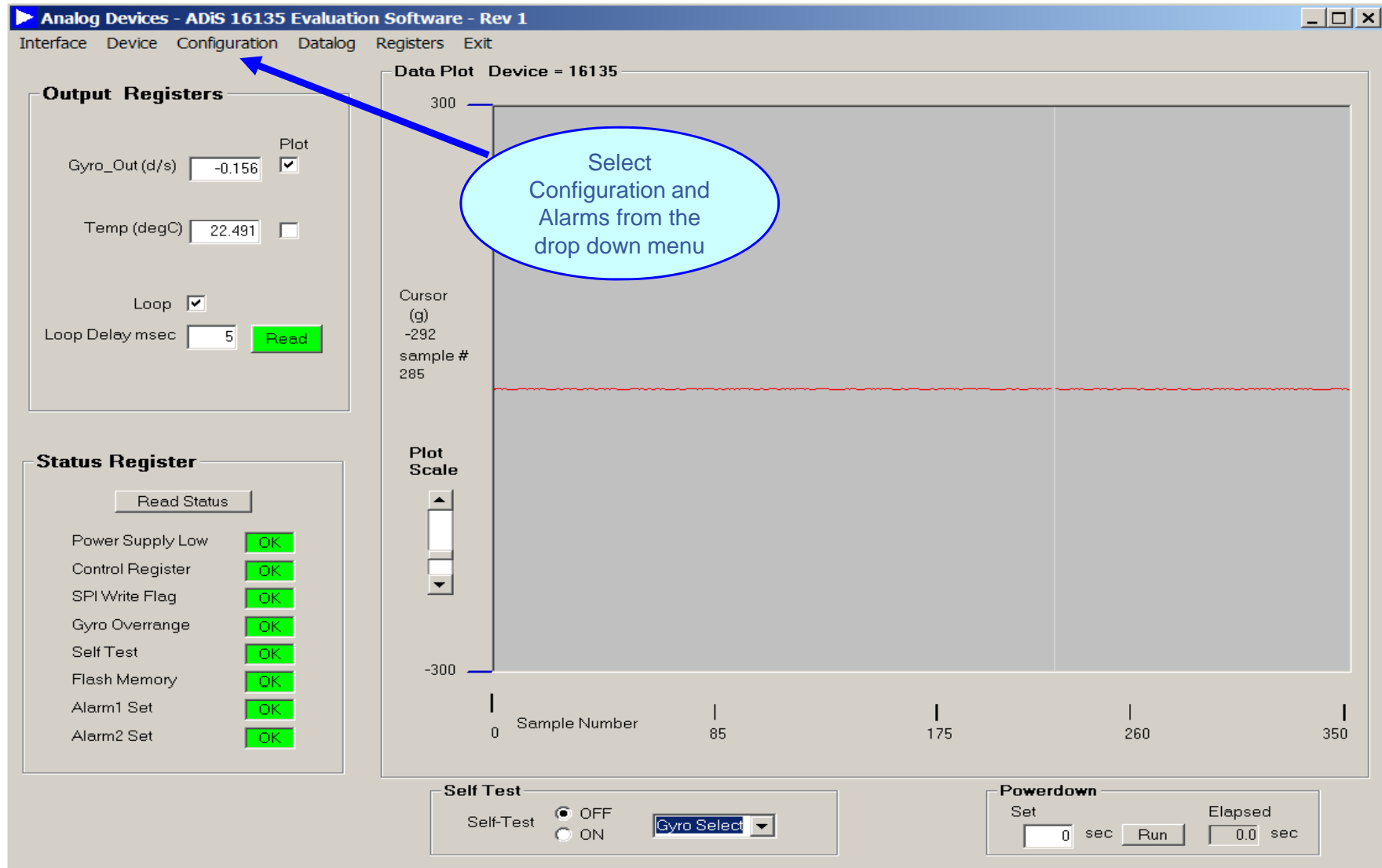
1. Watch the Gyro Out response on screen.

Observe Gyro Out while rotating board back and forth on table top



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ADIS16135 Demonstration Tips—Alarms??



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ADIS16135 Demonstration Tips— Alarm Set up

ALARM/DIO LINE CONFIGURATION AND CONTROL

ALARM 1		ALARM 2	
Source	Gyro Out	Source	Disabled
Trigger	50.000 ALM_MAG1 F61	Trigger	0.000 ALM_MAG2 0
Trigger	<input checked="" type="radio"/> Greater than <input type="radio"/> Less than	Trigger	<input type="radio"/> Greater than <input checked="" type="radio"/> Less than
ROC Sample	0 ALM_SMPL1 0	ROC Sample	0 ALM_SMPL2 0
Rate of change	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled	Rate of change	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled

Digital Alarm Indicator

Digital Alarm	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Digital Line	<input checked="" type="radio"/> DI/O1 <input type="radio"/> DI/O0
Output Polarity	<input checked="" type="radio"/> High <input type="radio"/> Low
Filtered Select	<input type="radio"/> Filtered <input checked="" type="radio"/> Unfiltered

3 **Update**

***Update button must be pressed to activate all option changes!**

Auxilliary Digital I/O Configuration

Configure as a general purpose I/O line

Digital I/O Line 0	<input checked="" type="radio"/> Input <input type="radio"/> Output	Set Line 0 Level	<input checked="" type="radio"/> High <input type="radio"/> Low
Digital I/O Line 1	<input checked="" type="radio"/> Input <input type="radio"/> Output	Set Line 1 Level	<input type="radio"/> High <input checked="" type="radio"/> Low

Configure as a data ready line

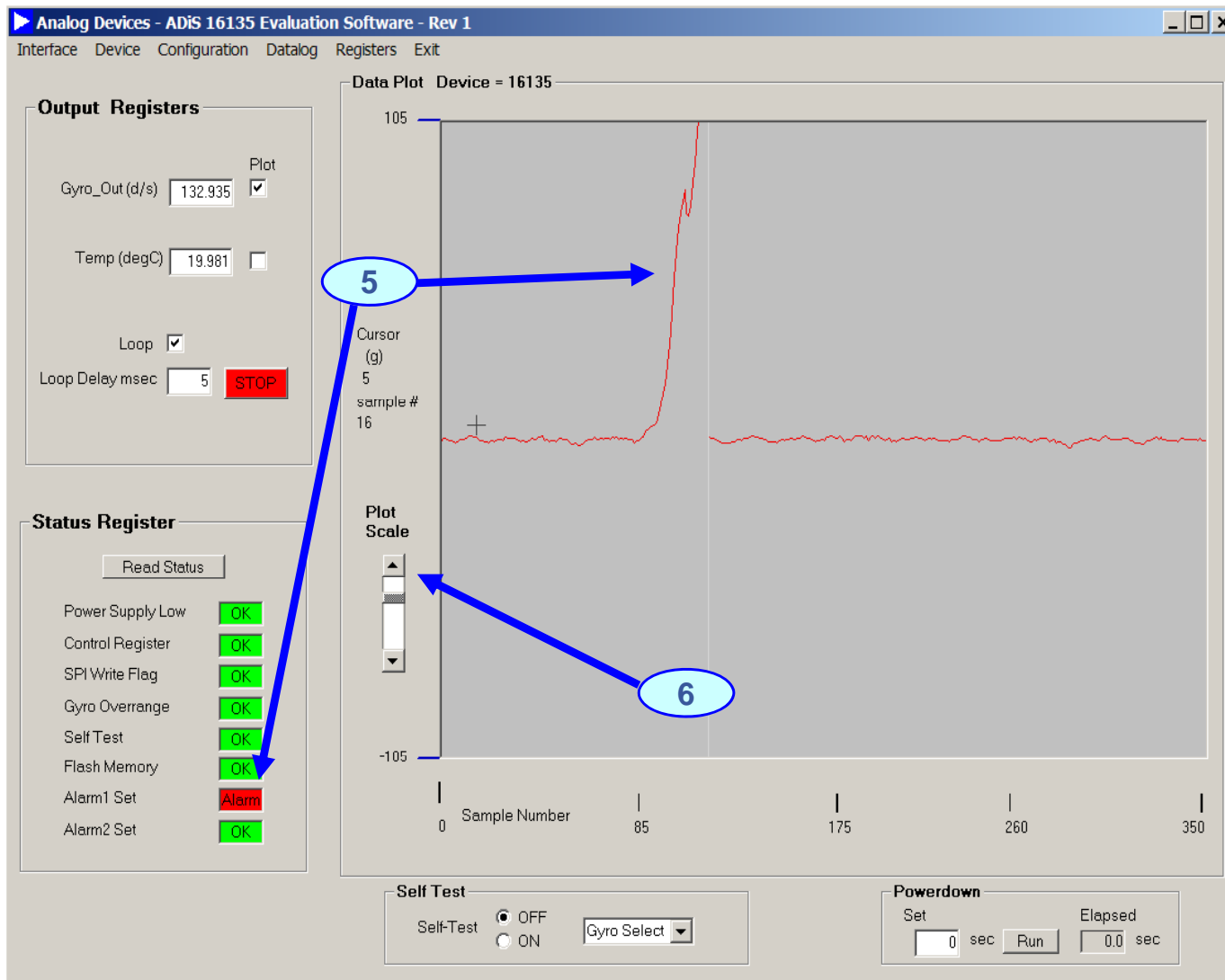
Enable	<input type="radio"/> ON <input checked="" type="radio"/> OFF	Select I/O line	<input type="radio"/> DI/O1 <input checked="" type="radio"/> DI/O0	Output Polarity	<input type="radio"/> High <input checked="" type="radio"/> Low
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4 **Close Window** **Flash Memory Register Update**

1. Set Alarm 1 source for Gyro Out.
2. Set the Trigger level to 50 and Greater Than
3. Click the Update button to accept changes
4. Click on Close Window to return to the main screen

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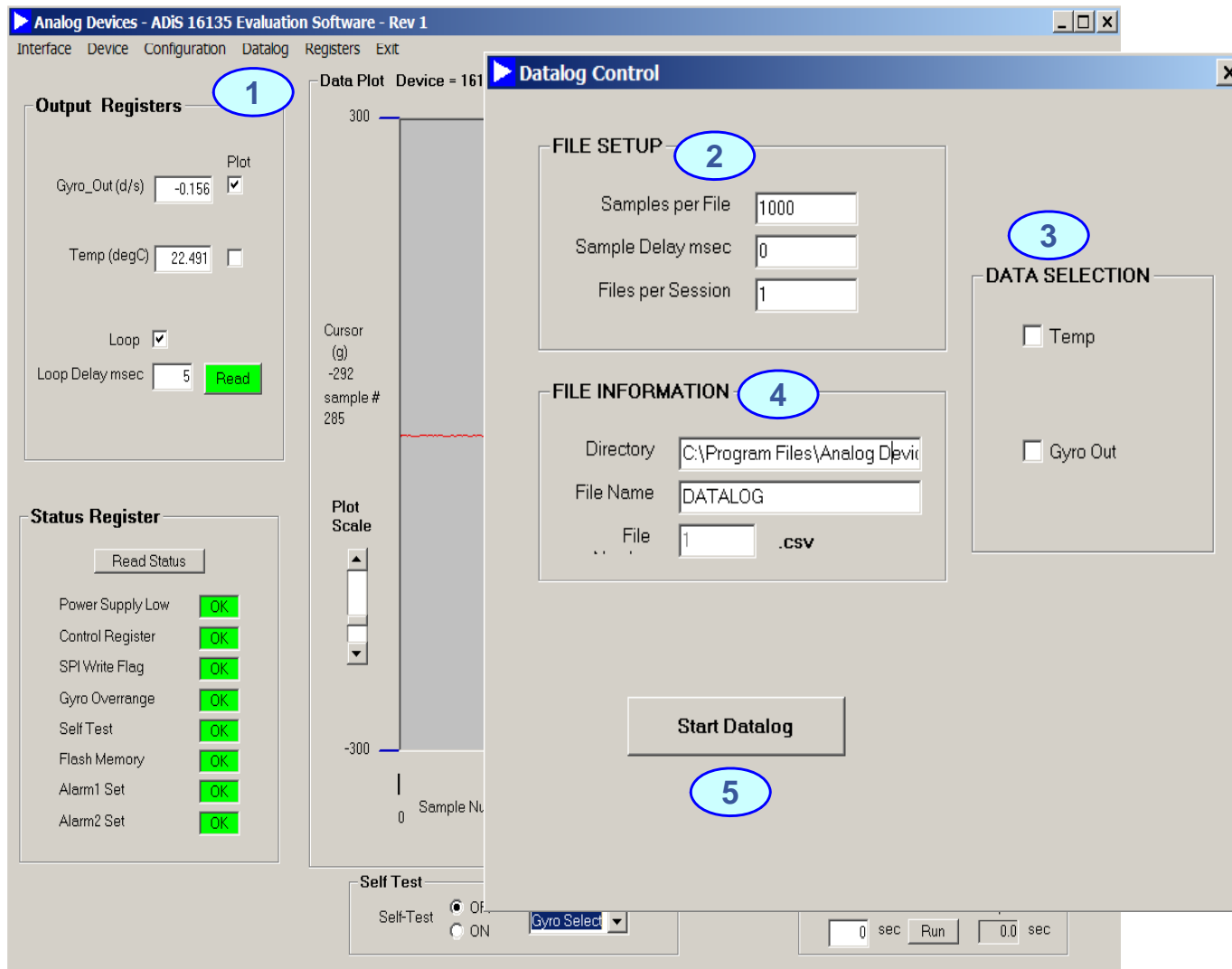
ADIS16135 Demonstration Tips—Alarms Continued



5. Alarm 1 is set when the Gyro level is above 50
6. The Plot Scale can be changed for a more accurate reading by moving the slider

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ADIS16135 Demonstration Tips—Collect Data



1. Select Datalog on the main screen
2. File Setup- enter # of samples delay and # of files
3. Data Selection- Choose the output data you want
4. File Information- Enter the file name and # of files
5. Start Datalog- Click the button to begin data processing
 - a. File is output to program file folder created during installation



◆ CONTACTS:

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- **APPLICATIONS ENGINEER:** Mark Looney, 1-336-605-4139

MORE INFORMATION:

- www.analog.com/isensor
- **New Brochure: *i*Sensor Motion Sensor Products**

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Электрон
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