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# *iSensor*<sup>®</sup>

## ADIS16135 Evaluation Tool Overview

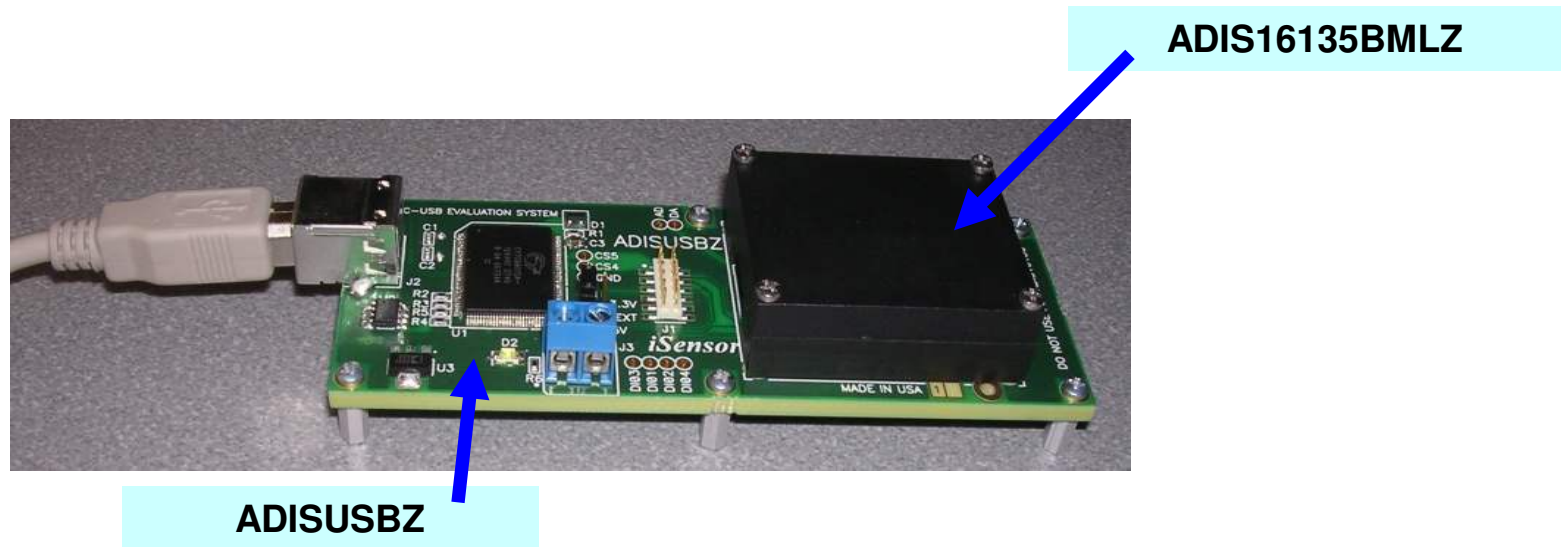


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*iSensor*<sup>®</sup> Application Engineer  
July 2011



# iSensor<sup>®</sup> The Simple Solution for Sensor Integration 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

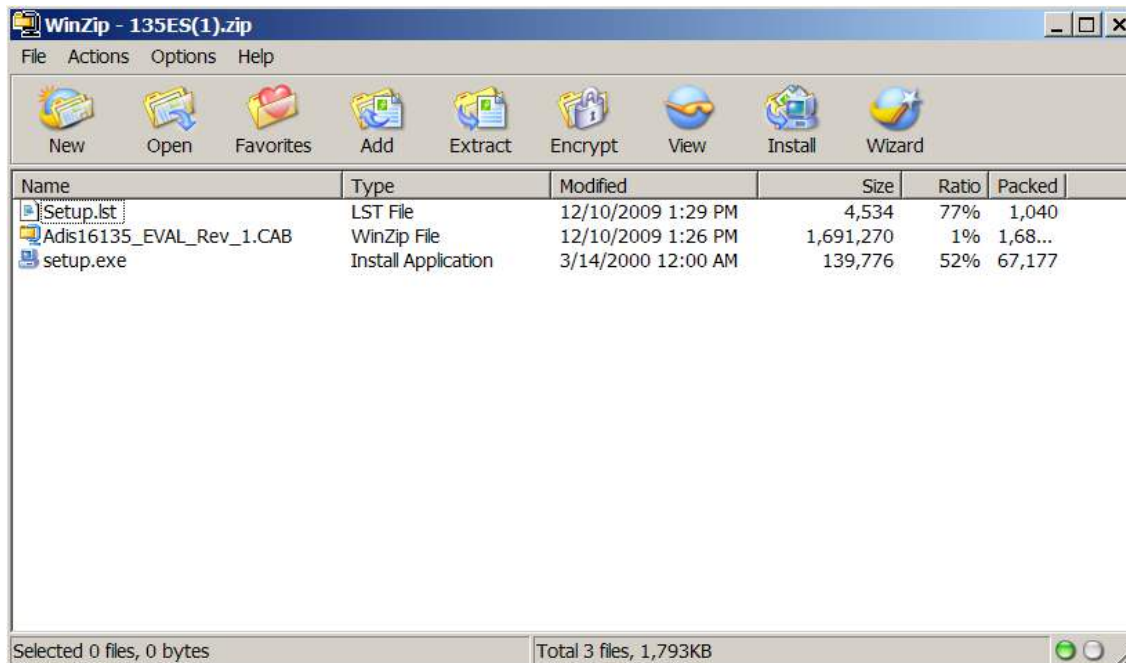


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## ADIS16135 Demonstration Software Installation

The ADIS16135 demonstration software can be found at [www.analog.com/ADIS16135](http://www.analog.com/ADIS16135)

1. Click on “Evaluation Software Downloads”
2. Click on 135ES.zip and save it to a temporary directory
3. Open it and double click on setup.exe.

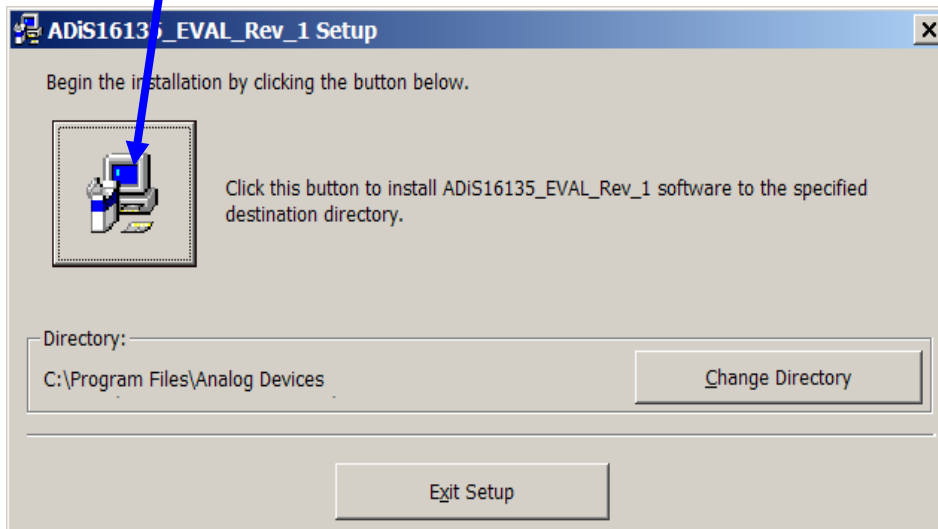
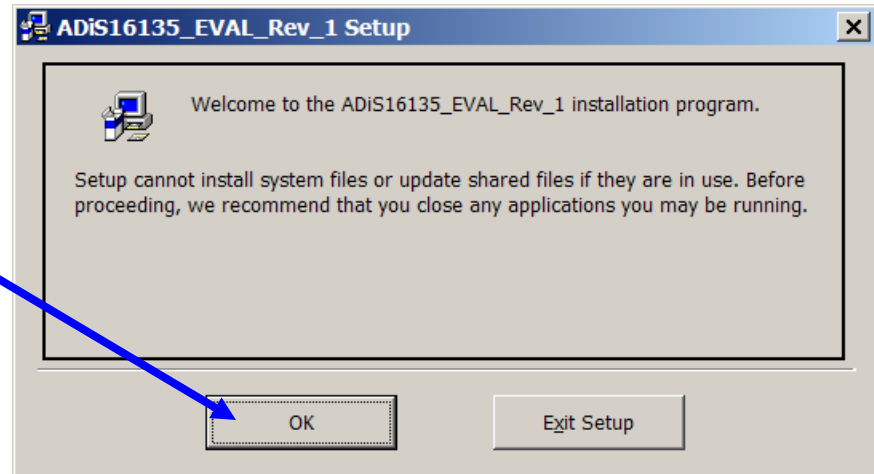


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## ADIS16135 Demonstration Software Installation

### Installation Steps (continued)

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



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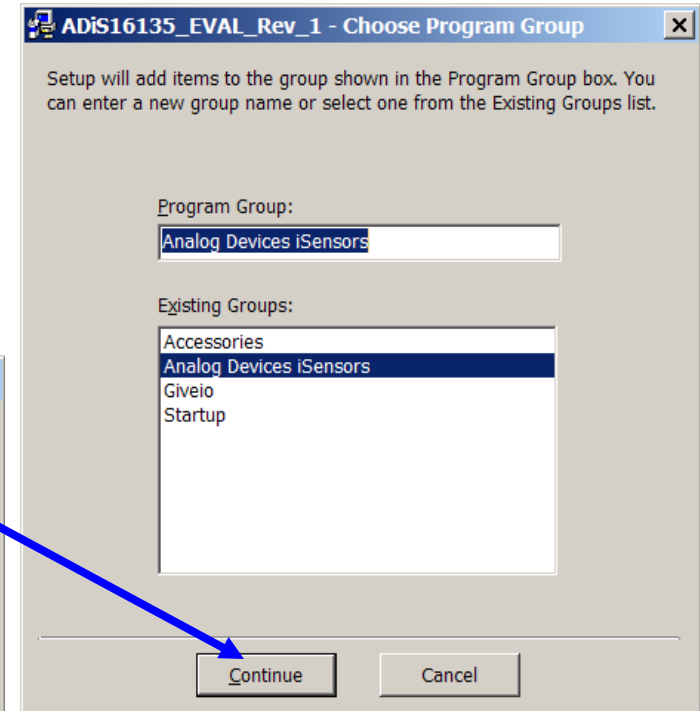
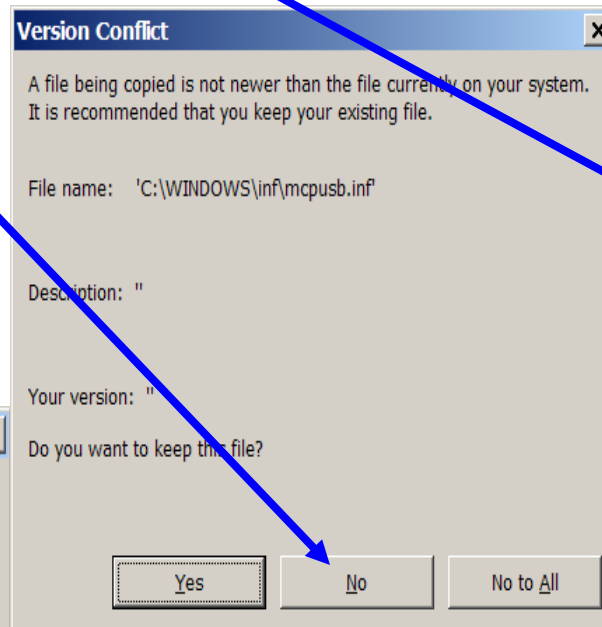
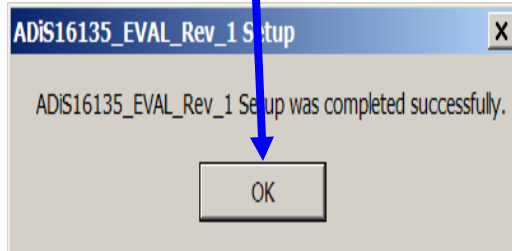
## ADIS16135 Demonstration Software Installation

### Installation Steps (continued)

6. Click **Continue**

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

8. Click **OK**

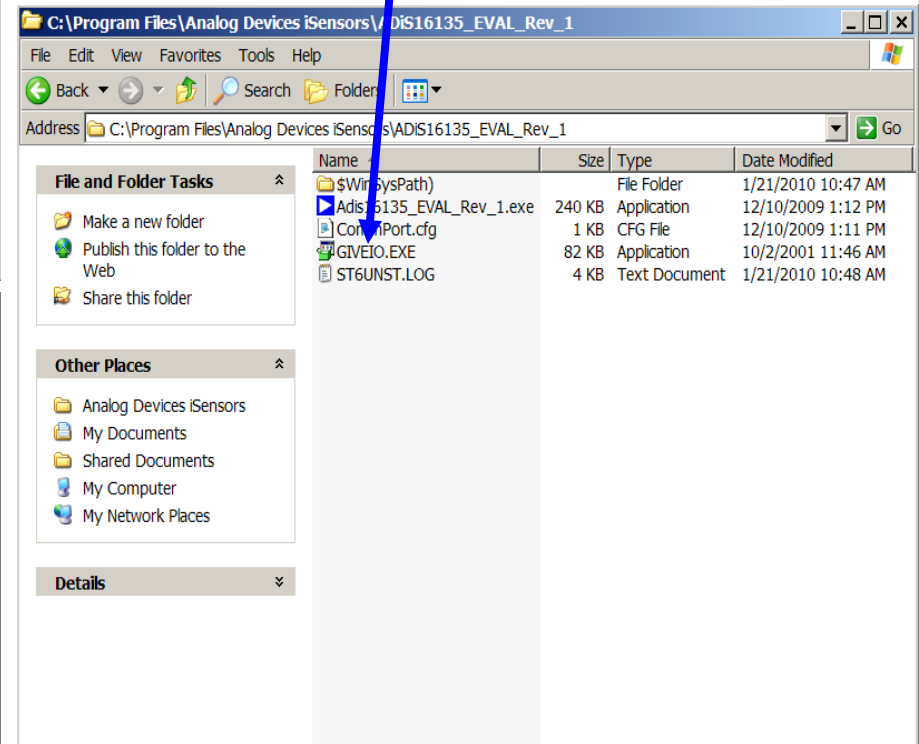
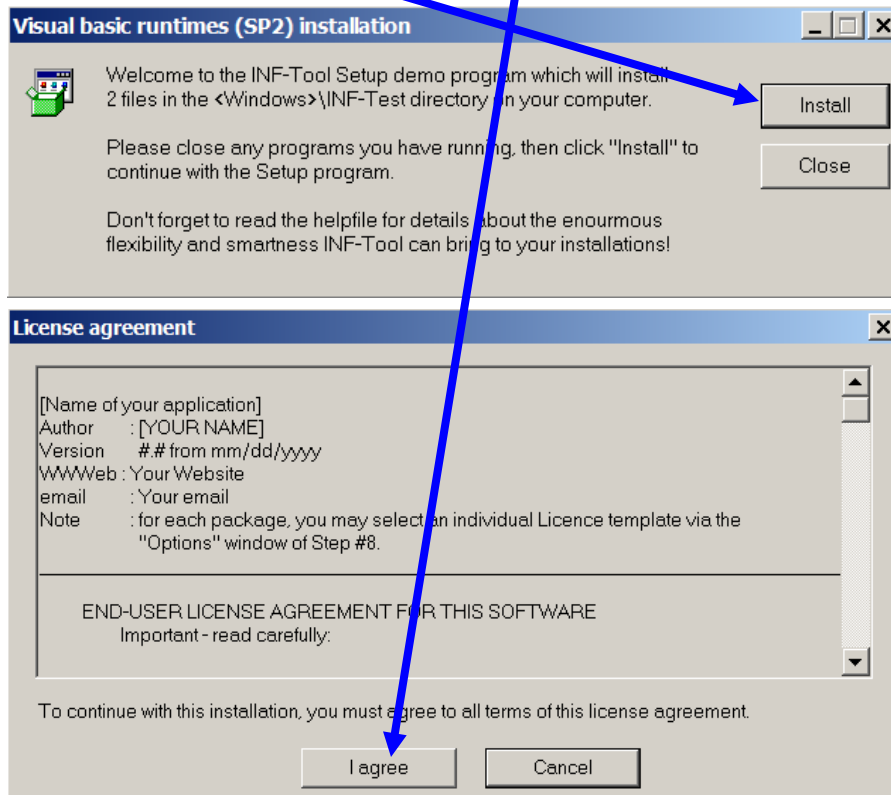


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## ADIS16135 Demonstration Software Installation

### Installation Steps (continued)

9. Open the newly created directory and double-click onto **GIVEIO.EXE**
10. Click **Install**, then **I agree**

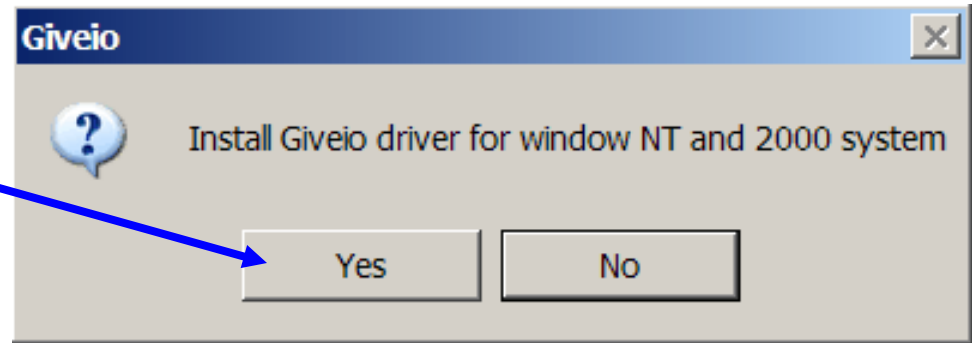


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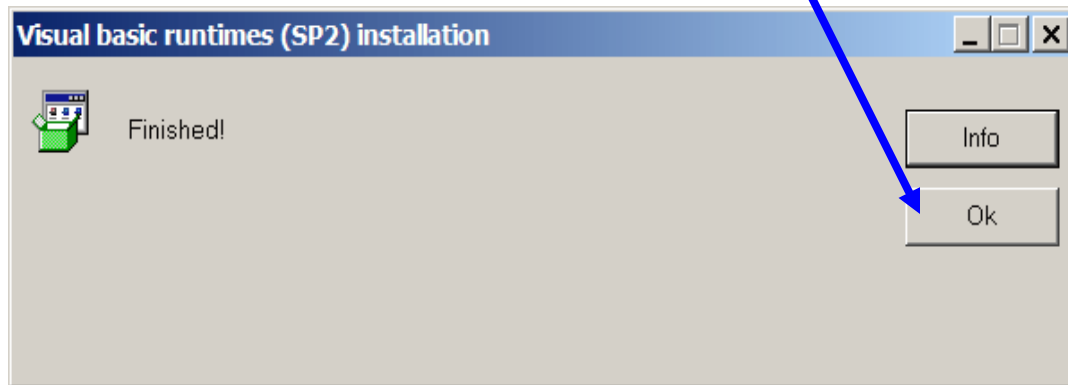
## ADIS16135 Demonstration Software Installation

### Installation Steps (continued)

11. Click **Yes**



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



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## ADIS16135BMLZ Installation on ADISEVALUSBZ-135

### Installation Steps (continued)

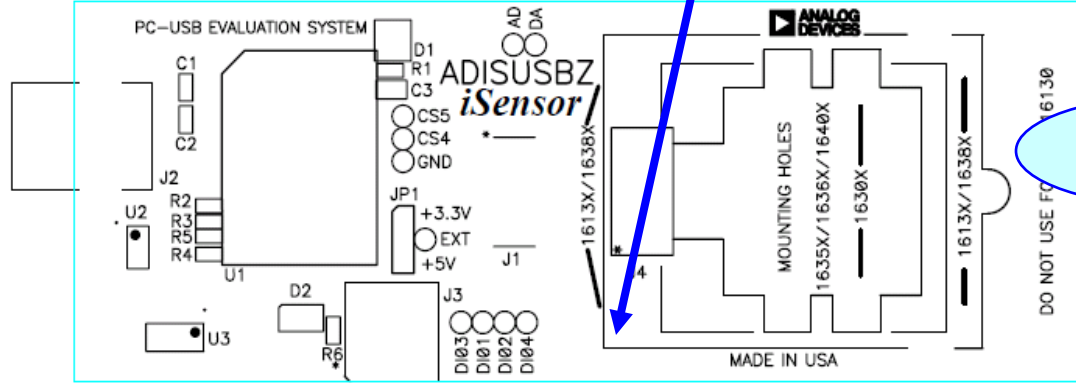
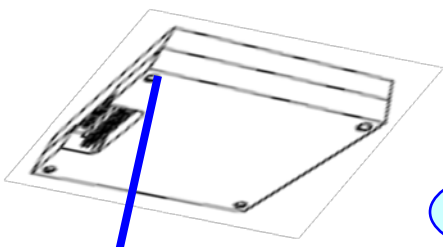
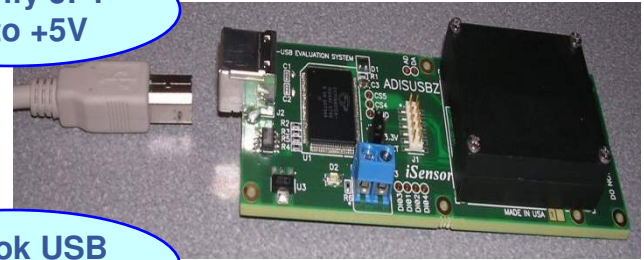
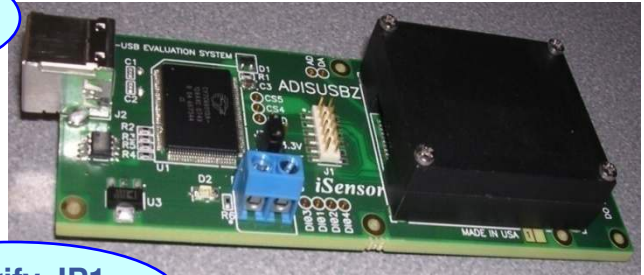
13. Install ADIS16135BMLZ on ADISEVALUSBZ
14. Remove ribbon cable and screws
15. Carefully insert the ADIS16135BMLZ into the J4 connector
16. Secure part with 2x18mm screws

1. Secure with 2x18mm screws

2. Attach 135/PCBZ to J4 Connector

3. Verify JP1 set to +5V

4. Hook USB cable up





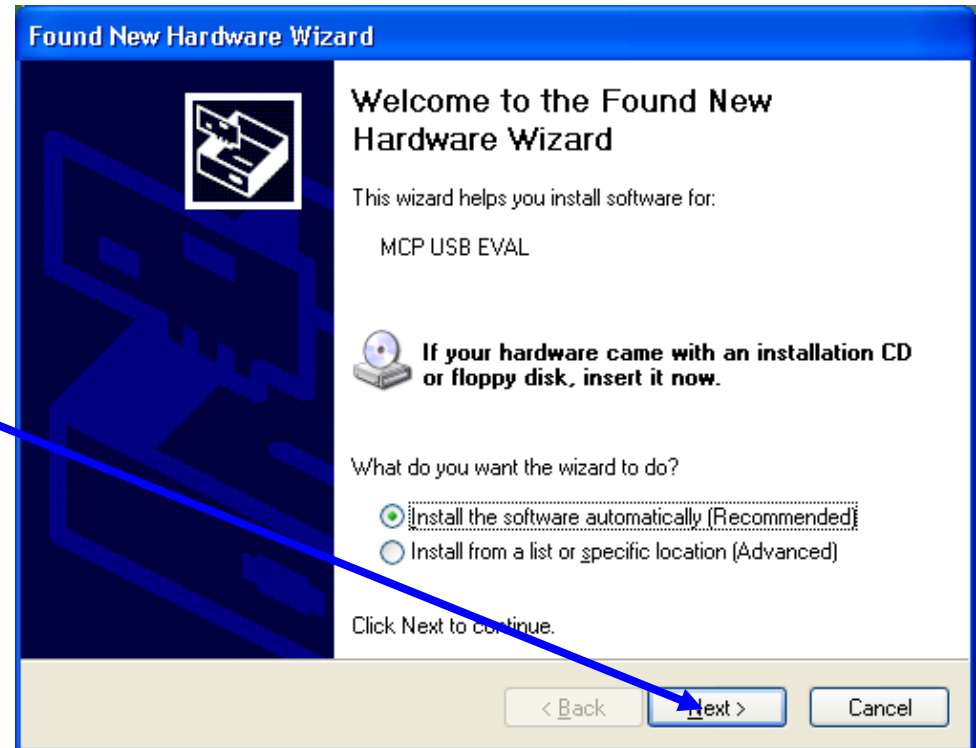
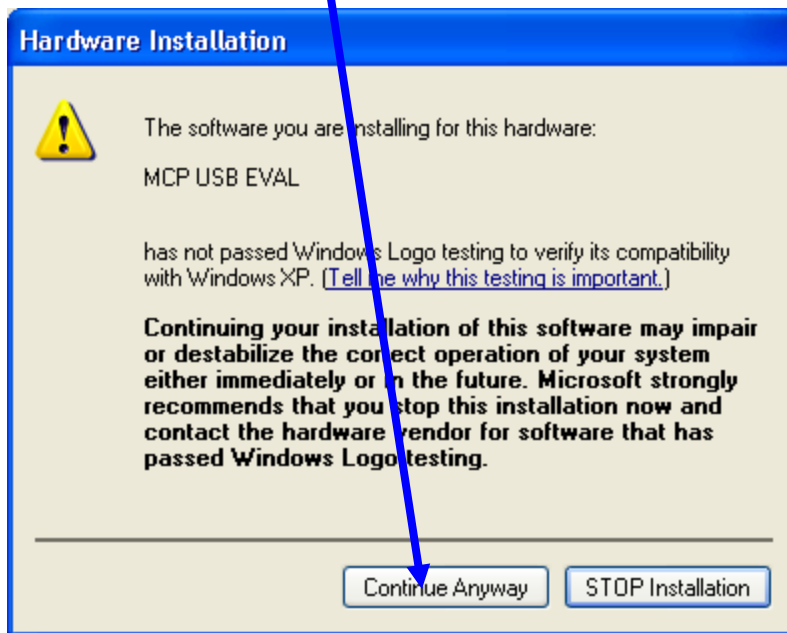
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## ADIS16135 Demonstration Software Installation

### Installation Steps (continued)

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

18. 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, 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 main interface includes several sections:

- Output Registers:** Gyro\_Out (d/s) is -0.233, Temp (degC) is 20.357. A 'Read' button is visible.
- Status Register:** A 'Read Status' button and a list of status indicators, all showing 'OK' in green boxes.
- Data Plot:** A graph titled 'Data Plot Device = 16135' showing 'Cursor (g)' vs 'Sample #'. The y-axis ranges from -300 to 300, and the x-axis ranges from 0 to 350. A 'Plot Scale' control is on the left.
- Self Test:** A 'Self-Test' section with radio buttons for 'OFF' (selected) and 'ON', and a 'Gyro Select' dropdown.
- Powerdown:** A 'Powerdown' section with 'Set' (0 sec) and 'Elapsed' (0.0 sec) fields, and a 'Run' button.

A 'USB SPI Card Selection' dialog box is overlaid on the right side of the software. It contains a 'Buffer Select' table:

	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			

The dialog also includes a 'Search' button, a 'Debug' button, and an 'OK' button. A blue arrow points from a callout bubble to the 'OK' button.

Two callout bubbles provide instructions:

- #1 Click here to access setup:** A blue arrow points from this bubble to the 'Read' button in the 'Output Registers' section.
- #2 Click OK to verify:** A blue arrow points from this bubble to the 'OK' button in the 'USB SPI Card Selection' dialog.

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## ADIS16135 Demonstration Tips— Initial Start up

The screenshot displays the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' interface. The 'Output Registers' section shows 'Gyro\_Out (d/s)' at -0.156 and 'Temp (degC)' at 22.491. The 'Status Register' section shows various status indicators (OK). The 'Data Plot' section shows a plot of 'Gyro Out (g)' vs 'Sample Number' with a value of -292 at sample 285. A blue callout bubble points to the 'Read' button and the plot area, containing the text: '#3 Click Read to see if Gyro Out is close to "0" when board is laying flat on a table'.

**Output Registers**

- Gyro\_Out (d/s): -0.156  Plot
- Temp (degC): 22.491
- Loop:
- Loop Delay msec: 5

**Status Register**

- Power Supply Low:
- Control Register:
- SPI Write Flag:
- Gyro Overrange:
- Self Test:
- Flash Memory:
- Alarm1 Set:
- Alarm2 Set:

**Data Plot** Device = 16135

Cursor (g): -292  
sample #: 285

**Plot Scale**

**Self Test**

- Self-Test:  OFF  ON

**Powerdown**

- Set: 0 sec
- Elapsed: 0.0 sec

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## ADIS16135 Demonstration Tips—AUTO-Null

The screenshot displays the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' interface. The main window is titled 'Data Plot Device = 16135' and shows a plot of acceleration (g) versus sample number. A 'Calibration' window is open, featuring sections for 'Automatic Features' and 'Manual Calibration Adjustment'. The 'Automatic Features' section includes 'Restore Factory Calibration' and 'Auto Null', both with 'Run' buttons. The 'Manual Calibration Adjustment' section includes 'Gyroscope' settings for 'Offset' (18.034 deg/sec) and 'Decimate' (0), each with an 'Update' button. A 'Flash Memory Register Update' button is also present. The 'Output Registers' panel on the left shows 'Gyro\_Out (d/s)' at -0.156 and 'Temp (degC)' at 22.491. The 'Status Register' panel shows various status indicators, all marked 'OK'. The 'Self Test' panel at the bottom shows 'Self-Test' set to 'OFF' and 'Gyro Select' set to 'Gyro Select'. A blue callout bubble points to the 'Configuration' menu item, and another blue callout bubble points to the 'Run' button for 'Auto Null'. A third blue callout bubble points to the 'Flash Memory Register Update' button.

**Output Registers**

Gyro\_Out (d/s)   Plot

Temp (degC)

Loop

5

**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  58C

Decimate  (0-16)  0

**Self Test**

Self-Test  OFF  ON

set  sec  elapsed  sec

**Annotations:**

- Select Configuration and Calibration
- While the part is flat on the table top click on Run button. When complete, click on Update, then Flash Memory Update.



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## ADIS16135 Demonstration Tips— Gyro

**Output Registers**

Gyro\_Out (d/s)  Plot

Temp (degC)

Loop

Loop Delay msec  **STOP**

**Data Plot** Device = 16135

Cursor (g) -263 sample # 325

**Plot Scale**

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

**Status Register**

Read Status

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

**Self Test**

Self-Test  OFF  ON Gyro Select

**Powerdown**

Set  sec Run Elapsed  sec

1. Watch the Gyro Out response on screen.





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## ADIS16135 Demonstration Tips— Alarms??

**Output Registers**

Gyro\_Out (d/s)   Plot

Temp (degC)

Loop

Loop Delay msec

**Status Register**

Power Supply Low

Control Register

SPI Write Flag

Gyro Overrange

Self Test

Flash Memory

Alarm1 Set

Alarm2 Set

**Data Plot** Device = 16135

Cursor (g) -292  
sample # 285

Plot Scale

Sample Number 0 85 175 260 350

**Self Test**

Self-Test  OFF  ON

**Powerdown**

Set  sec  Elapsed  sec

Select Configuration and Alarms from the drop down menu

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## ADIS16135 Demonstration Tips— Alarm Set up

**ALARM/DIO LINE CONFIGURATION AND CONTROL**

**ALARM 1**

Source: Gyro Out

Trigger: 50.000 ALM\_MAG1: F61

Trigger:  Greater than  Less than

ROC Sample: 0 ALM\_SMPL1: 0

Rate of change:  Enabled  Disabled

**ALARM 2**

Source: Disabled

Trigger: 0.000 ALM\_MAG2: 0

Trigger:  Greater than  Less than

ROC Sample: 0 ALM\_SMPL2: 0

Rate of change:  Enabled  Disabled

**Digital Alarm Indicator**

Digital Alarm:  Enabled  Disabled

Digital Line:  DI/O1  DI/O0

Output Polarity:  High  Low

Filtered Select:  Filtered  Unfiltered

**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  Output

Set Line 0 Level:  High  Low

Digital I/O Line 1:  Input  Output

Set Line 1 Level:  High  Low

**Configure as a data ready line**

Enable:  ON  OFF

Select I/O line:  DI/O1  DI/O0

Output Polarity:  High  Low

**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

The screenshot shows the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' interface. On the left, the 'Output Registers' section shows 'Gyro\_Out (d/s)' at 132.935 with a 'Plot' checkbox checked. Below it, 'Temp (degC)' is 19.981. The 'Status Register' section shows 'Alarm1 Set' with a red 'Alarm' indicator. The 'Data Plot' shows a red line graph of Gyro level vs Sample Number, with a peak at sample 16. A blue arrow labeled '5' points to the peak, and another blue arrow labeled '6' points to the 'Plot Scale' slider.

Register/Status	Value/Status
Gyro_Out (d/s)	132.935
Temp (degC)	19.981
Alarm1 Set	Alarm
Alarm2 Set	OK

- 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

The screenshot shows the 'Analog Devices - ADIS 16135 Evaluation Software - Rev 1' interface. The 'Datalog Control' dialog box is open, showing the following settings:

- FILE SETUP:** Samples per File: 1000, Sample Delay msec: 0, Files per Session: 1.
- FILE INFORMATION:** Directory: C:\Program Files\Analog Devices, File Name: DATALOG, File: 1 .csv.
- DATA SELECTION:** Temp (unchecked), Gyro Out (unchecked).

The 'Start Datalog' button is highlighted with a blue circle and the number 5. Other numbered callouts point to the 'Output Registers' (1), 'File Setup' (2), 'Data Selection' (3), and 'File Information' (4) sections.

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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