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Getting Started with the ADIS1622x Evaluation Tools



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iSensor[®] *The Simple Solution for Sensor Integration* Evaluation Tool Options

The iSensor evaluation tools are designed for two purposes:

1. Enable fast connection to SPI-compatible processor systems.
2. Provide simple PC-based tools to demonstrate basic device functions.

ADIS16220/PCBZ, Interface board

1. Provides ADIS16220CCCZ on a small PCB with 2mm connectors.
2. Eliminates the need to solder the LGA package in a prototype process.
3. Connects directly to the PC-USB evaluation system, ADISUSBZ

ADIS16223/PCBZ, ADIS16227/PCBZ Interface boards

1. Provides ADIS16223CMLZ on a small PCB with a 2mm connector.
2. Eliminates the need to develop a prototype board with the mating connector.
3. Connects directly to the PC-USB evaluation system, ADISUSBZ

ADISUSBZ, PC-USB Evaluation System

1. Complete system for demonstrating device function.
2. Saves capture buffer data to Excel-friendly file formats.

ADIS16220/PCBZ



**ADIS16223/PCBZ
ADIS16227/PCBZ**

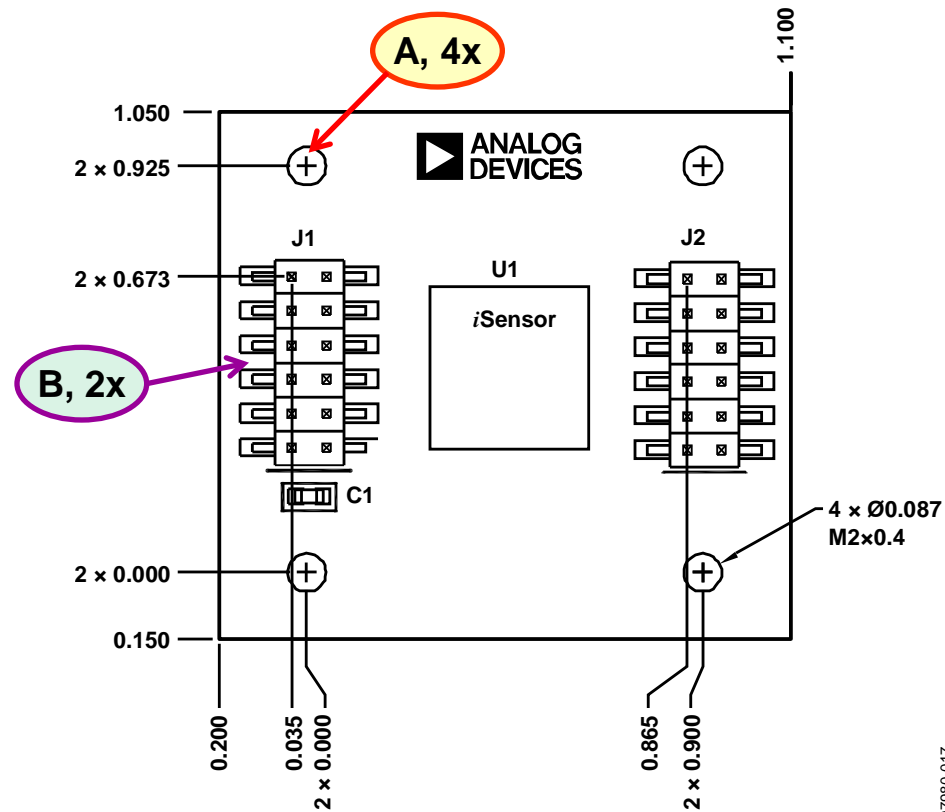
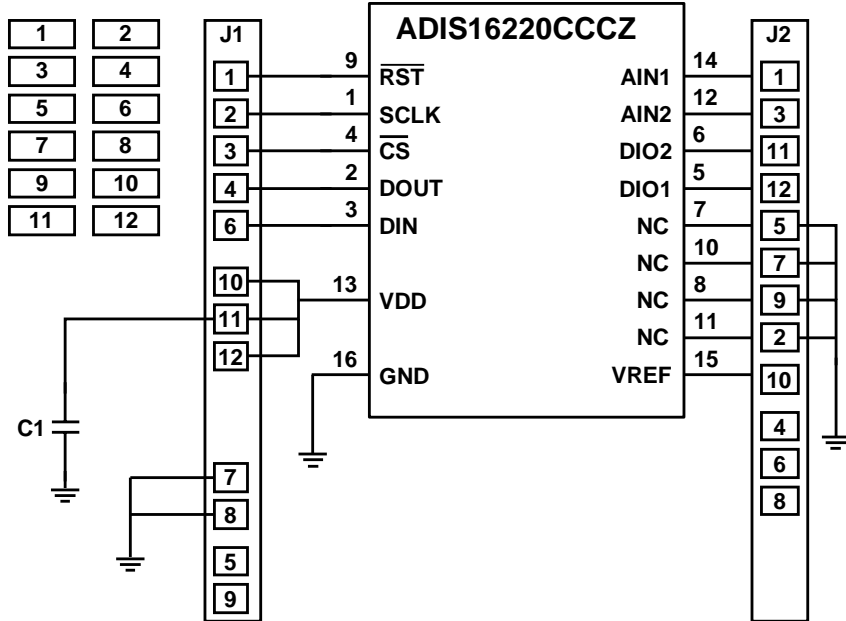
ADISUSBZ



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ADIS16220/PCBZ

J1/J2 PIN NUMBERS

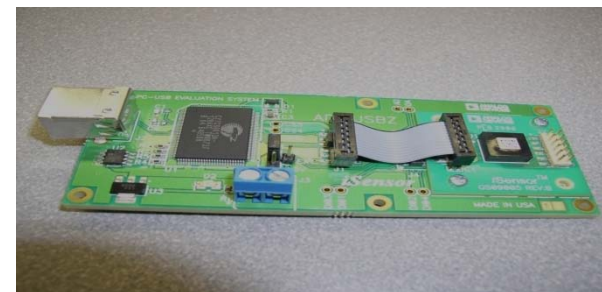


- A.** Interface board general-purpose mounting holes. Use M2 (2mm) machine screws. Use these to manage PCB-level resonance threats.
- B.** J1, J2 are dual-row, 12-pin connectors, which enable simple connection to embedded processor systems with 1mm ribbon cable systems. Hirose Hirose A3-12PA-2SV(71).
- C.** Use cables for prototype only and keep them as short as possible. SPI serial communications rely on good signal integrity.

iSensor[®] *The Simple Solution for Sensor Integration* ADIS16220/PCBZ Installation on ADISUSBZ

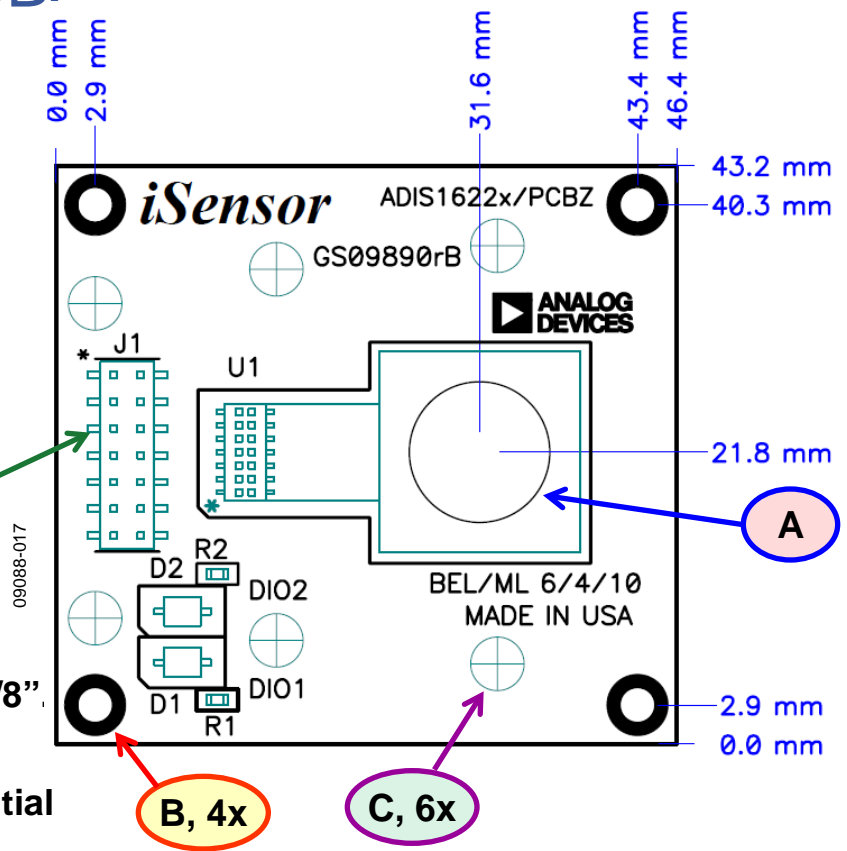
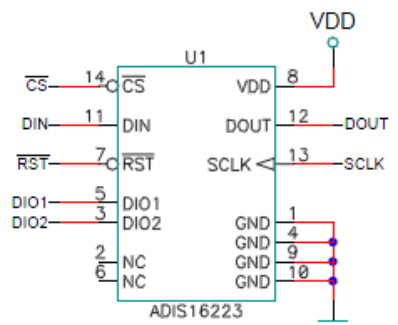
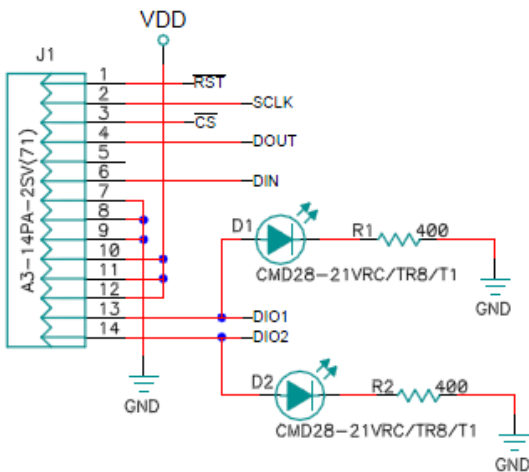
Installation Steps

1. Remove ribbon cable & (2) 2mm screws.
2. Place ADIS16220/PCBZ on the ADISUSBZ, using the silk screen and four corner mounting holes as a guide.
3. Install M2x6mm screws to secure ADIS16220/PCBZ on the ADISUSBZ. The ADISUSBZ provides 2mm threaded holes.
4. Re-install ribbon cable.
5. Set JP1 to “+3.3V”, it isn’t already in place option to “+5V” option. Do not plug USB in until completing ADIS16220 evaluation software installation.



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ADIS16223/PCBZ, ADIS16227/PCB7

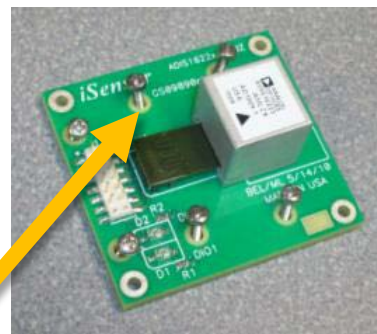
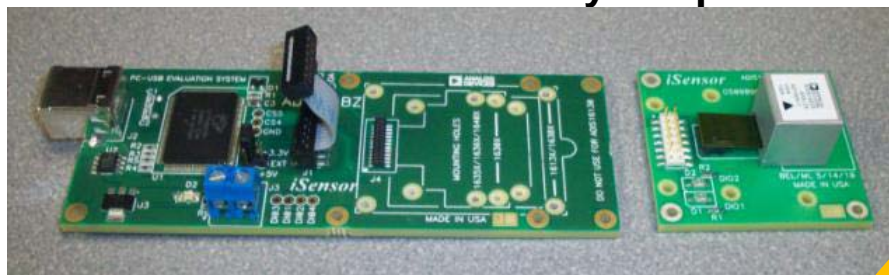


- A.** ADIS16223CMLZ bolted to the interface board using: Fastener Express p/n FHS1106-4I2 , flat head 10/32x3/8”.
- B.** Interface board general-purpose mounting holes. Use M2 (2mm) machine screws to help manage potential PCB-level resonance threats.
- C.** ADISUSBZ mounting holes. Use M2 (2mm) machine screws.
- D.** Electrical interface, J1. Pads provide 14-pins but the ADISUSBZ only accommodates 12 pins. Populated with a 12-pin, 2x6, 2mm connector. Pins 13 & 14 provide access to DIO1 & DIO2. Can manually replace J1 with 14-pin version. Example: Hirose A3-14PA-2SV(71).

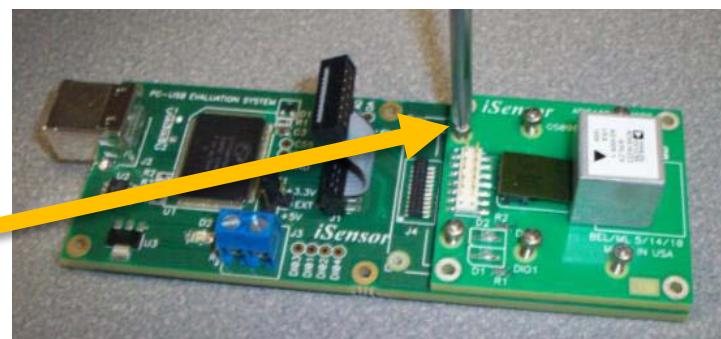
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ADIS16223/PCBZ, ADIS16227/PCBZ; ADISUSBZ Installation

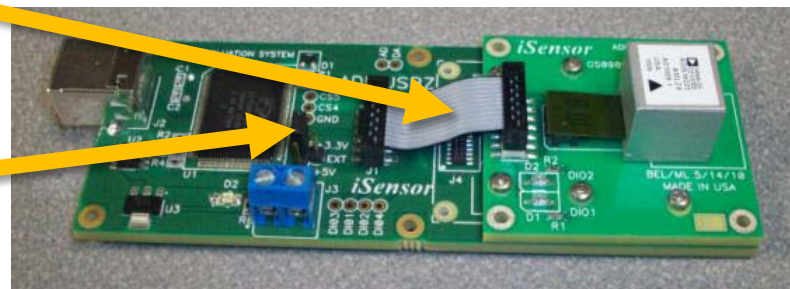
1. Bend ribbon cable back.
2. Remove M2 screws if they are present.



3. Place M2x6mm screws in six ADISUSB mounting holes.
4. Place ADIS1622x/PCBZ onto the ADISUSBZ and tighten screws.

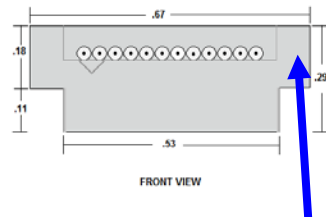
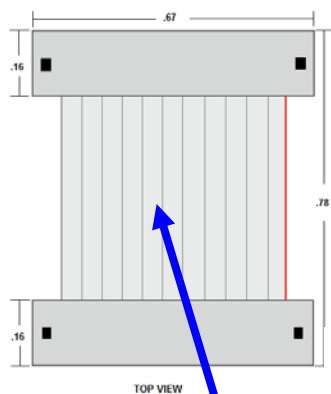


5. Connect ribbon cable, making sure that it is aligned with upper 12 pins.
6. Set JP1 to "+3.3V". Do not plug USB in until after completing ADIS1622x evaluation software installation.



iSensor[®] *The Simple Solution for Sensor Integration* **ADIS1622x/PCBZ Ribbon Cable Interface**

J1/J2 Ribbon Cable Interface Parts



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

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

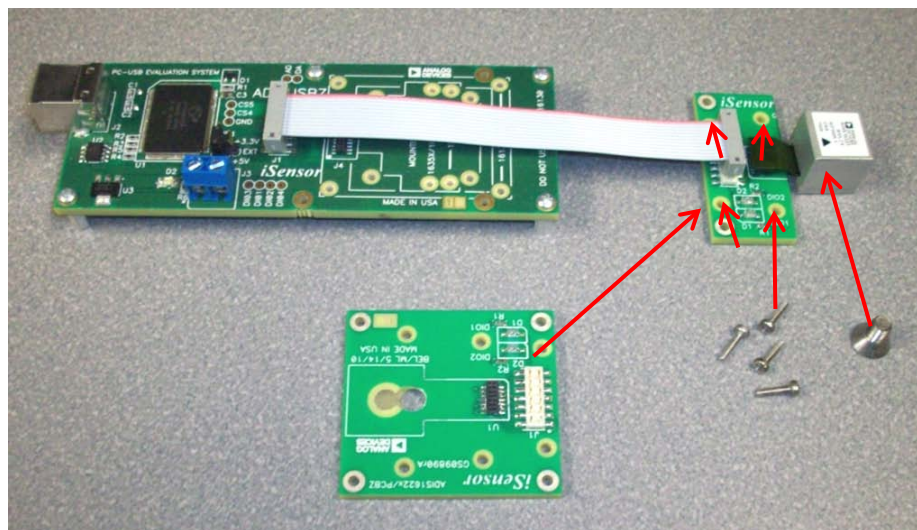
ADISUSBZ uses the following cable assembly from Samtec:

ASP-140062-01

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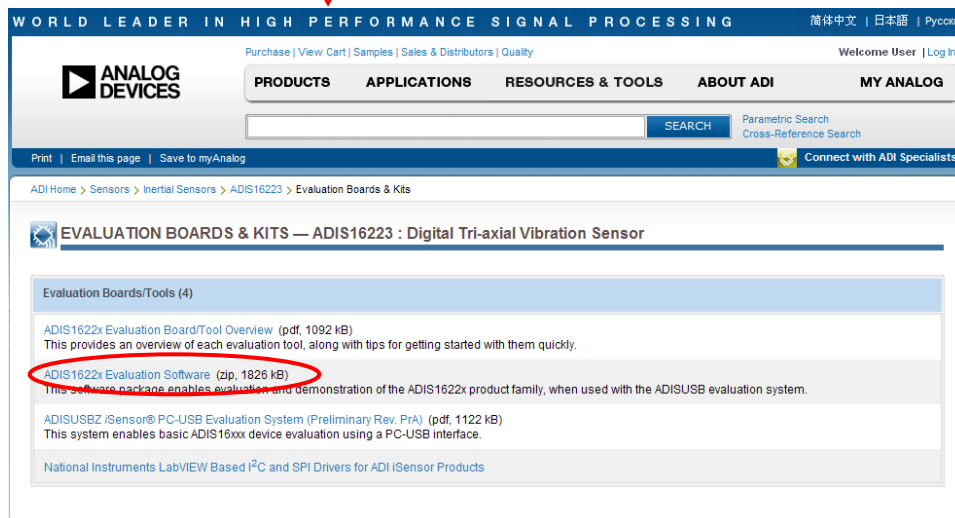
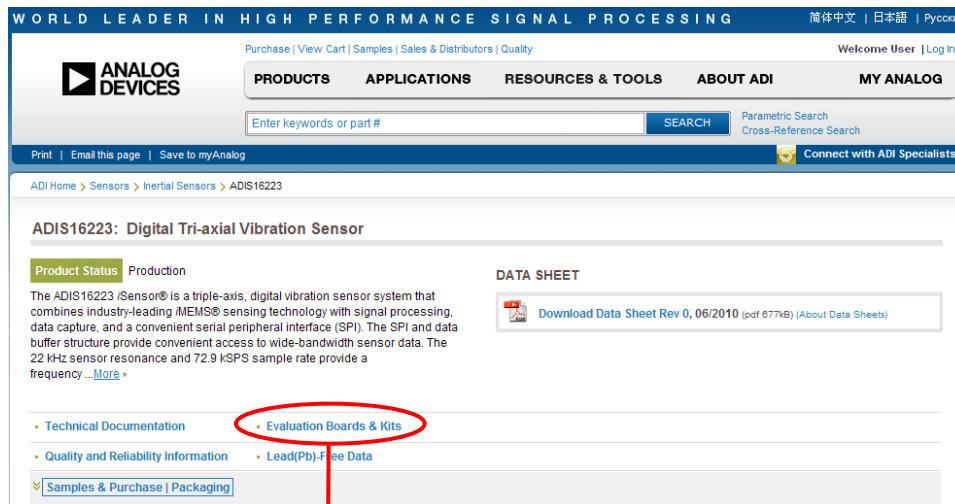
Alternate Use for Best Mechanical Coupling

1. Remove ADIS1622xCMLZ from ADIS1622x/PCBZ by carefully unplugging the flex (it can break) and the 10-32 screw on the bottom side.
2. Cut the interface board down so that the ADIS1622xCMLZ can be mounted to the test frame using a 10-32 stud or machine screw.
3. Use the cut down version of the interface board, along with an extended ribbon cable to still use the ADISUSBZ to capture data into a test PC.
4. Use 2mm screws to attach the cut-down interface board and 4-40 screws to mounted the ADISUSBZ.



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ADIS1622x Evaluation Software Installation



The ADIS16220, ADIS16223, and ADIS16227 have their own demo/evaluation software packages, which can be downloaded from each product's web page at www.analog.com.

Use the following steps to download, install, and get the evaluation software running. Each package will use a similar setup, with differences noted in the following steps.

NOTE: The demo/evaluation software packages use a driver set that is not currently compatible with Windows Vista and Windows 7. Use a machine with Windows XP operating system.

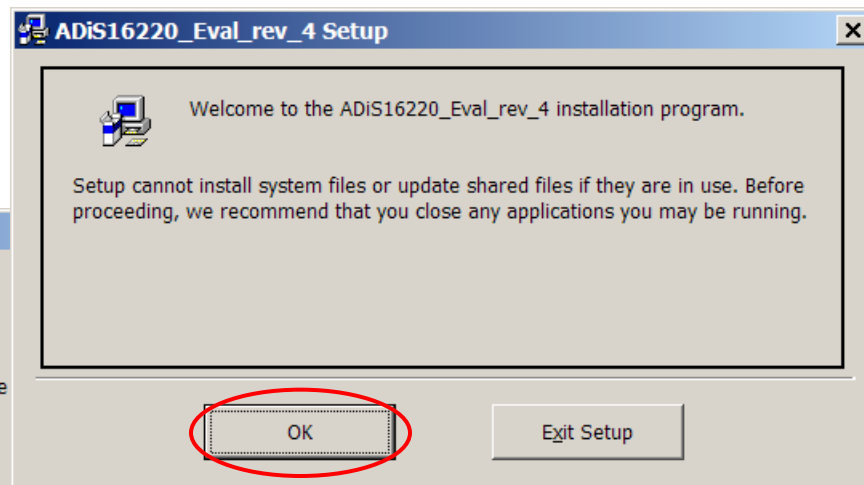
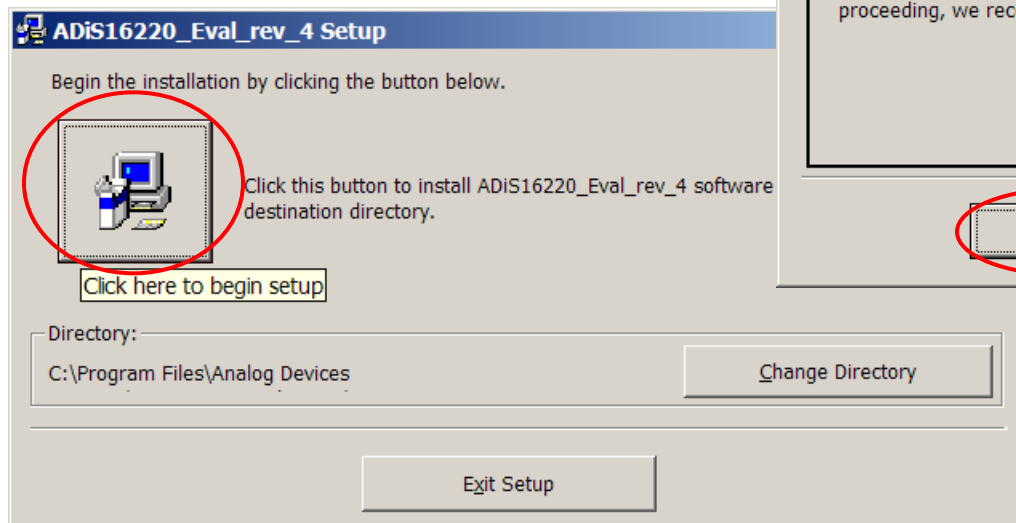
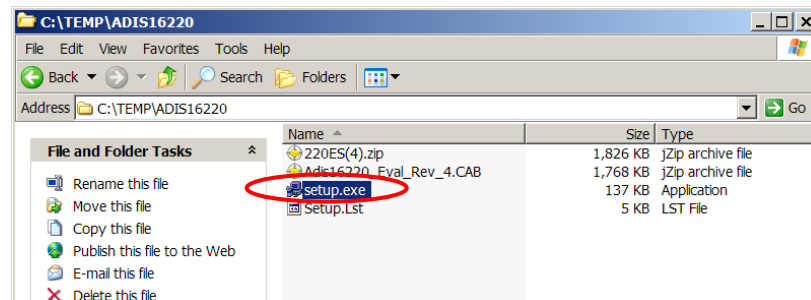
1. Go to home page, for example: www.analog.com/ADIS16223
2. Click on “Evaluation Boards & Kits.”
3. Click on the Evaluation software link to download the software and follow instructions to save it to a temporary directory.

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ADIS1622x Evaluation Software Installation

Installation Steps (continued)

4. Unpack contents from zipped file and click on “setup.exe”.
5. Click OK on the next screen.
6. Click on computer icon to start the installation process.

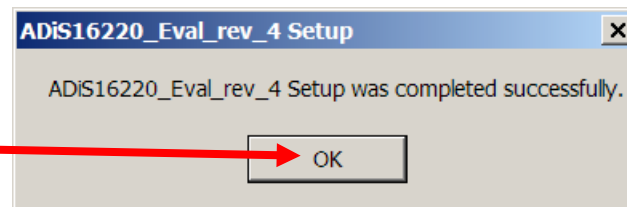
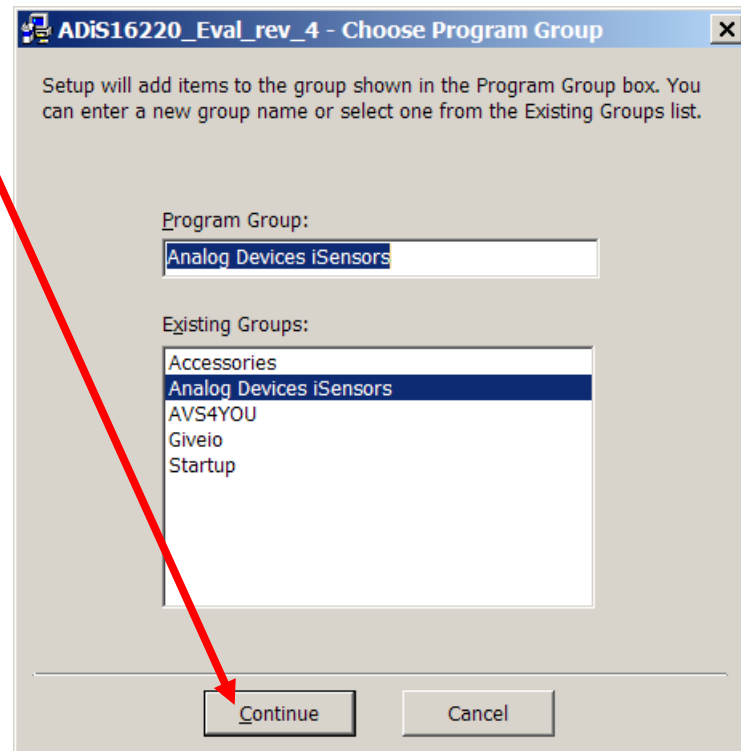
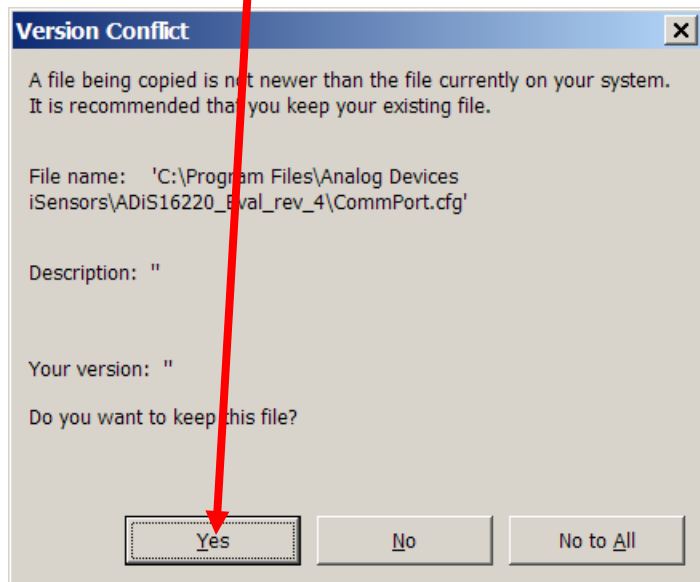


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ADIS1622x Evaluation Software Installation

Installation Steps (continued)

7. Click Continue.
8. If a window like this appears, we suggest keeping the existing files. In this case, click "Yes" to keep existing files.

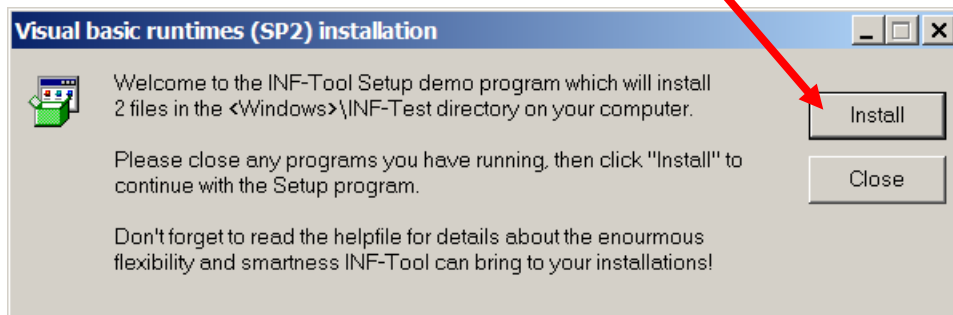
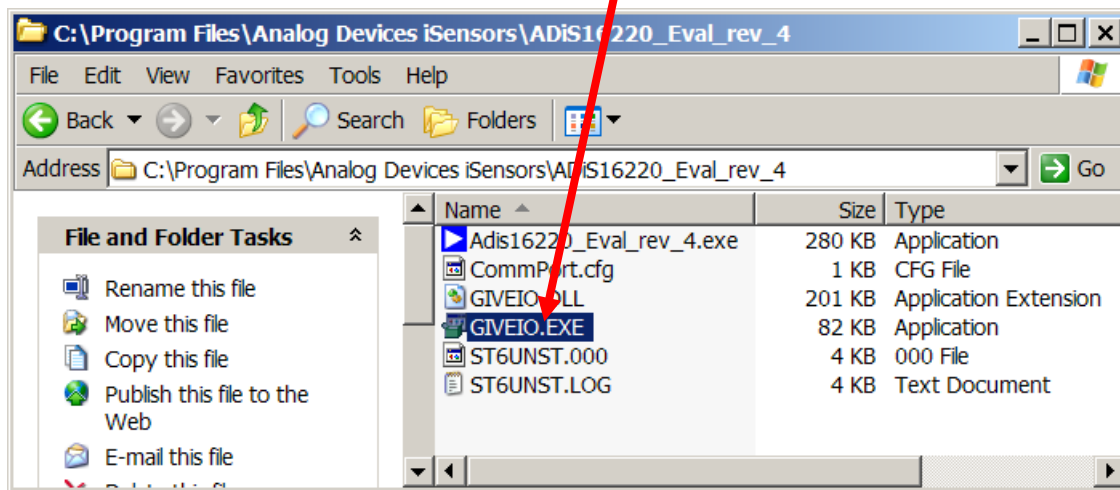


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ADIS1622x Evaluation Software Installation

Installation Steps (continued)

9. Open the newly created directory and double-click onto “giveio.exe”.
10. Click “Install”.



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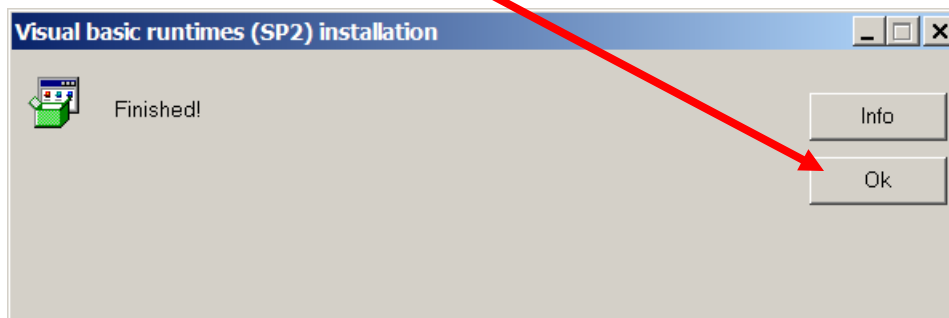
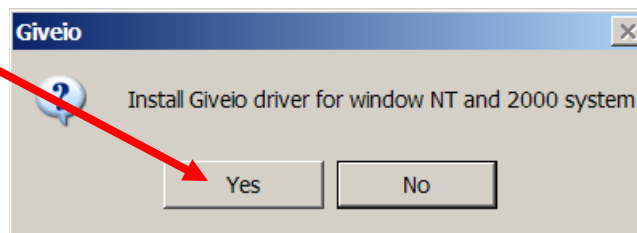
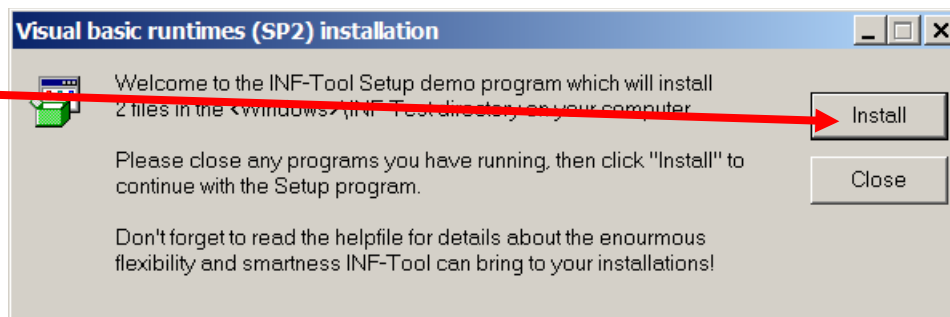
ADIS1622x Evaluation Software Installation

Installation Steps (continued)

11. Click "Install".

12. Click "Yes".

13. Giveio Driver complete.
Click "Ok".

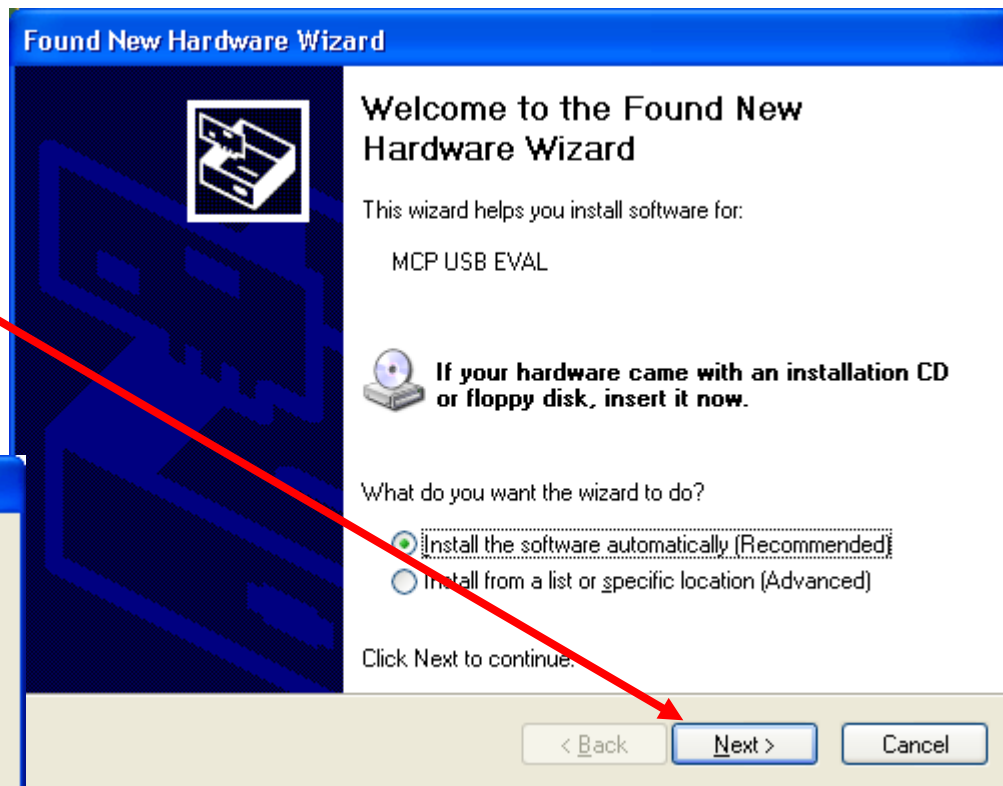


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MCP USB Driver Installation

Installation Steps

1. Plug the ADISUSBZ to the PC using an A-to-B USB cable. The USB Driver screen will pop-up. Click “Next” to start this process.
2. Then click on “Continue Anyway”.



This process will repeat with another file. Just follow the instructions and allow it to go through one more time. After completing this, the device is ready for test.

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ADIS1622x Software Tips, Manual Trigger Mode

The screenshot displays the ADIS16220 software interface with the following sections:

- Buffer CAPT_CTRL:** Pre-Trigger (128), Capture Mode (Manual), Trigger button. Includes checkboxes for Power Down Between Captures, Write Capture to Flash Memory, and Enable Band Pass Filter. Buttons for Read Flash and Write to Flash.
- Timer CAPT_PRD:** Units (no data), Interval (1), Timer Value (OFF).
- AVG_CNT:** Capt. Duration (0.23 sec), Averaging (1).
- Buffer Data:** Read button. Values: Capt_SUPPLY (V) 3.1885, Capt_TEMP (C) 24.81, CAPT_PEAK_X (g) -2.842, CAPT_PEAK_Y (g) -2.923, CAPT_PEAK_Z (g) 1.5688.
- Data Log:** Data Log (OFF), File Count (0).
- Self Test:** ON (radio button), OFF (radio button).
- Status Register:** Read Status, Clear. Status list: Supply < 3.150 V (OK), Supply > 3.625 V (OK), Flash Update Failure (OK), SPI Comm Failure (OK), Capture Period Violation (OK), Self-Test Diagnostic (OK), Flash Memory Failure (OK), Data Ready (SET), Alarm X (OK), Alarm Y (OK), Alarm Z (OK), System Alarm (OK), Alarm X Event (OK), Alarm Y Event (OK), Alarm Z Event (OK).
- Data Plot:** Graph showing acceleration data (X, Y, Z) over time. Cursor value: -0.5 sample 1. Scale (g) 7. Horz. Offset 0, Horz. Scale 1023. X acc, Y acc, Z acc checkboxes are checked.

1. Click on “Interface” and select USB, then OK when the pop-up window shows the USB device is connected.
2. Software should start up and place the ADIS1622x device in Manual mode.
3. Click to trigger button and wait for the capture to complete inside the device, then load to the screen.

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ADIS1622x Software Tips, Automatic Trigger Mode

The screenshot displays the ADIS16220 software interface with several key configuration areas highlighted by blue arrows:

- Buffer CAPT_CTRL:** The "Capture Mode" is set to "Automatic". A "Stop" button is visible.
- Timer CAPT_PRD:** The "Interval" is set to 30 seconds.
- AVG_CNT:** The "Capt. Duration" is set to 1.10 seconds and "AVG_CNT" is set to 64.
- Buffer Data:** A "Read" button is present, and the data fields (Capt_SUPPLY, Capt_TEMP, CAPT_PEAK_X, CAPT_PEAK_Y, CAPT_PEAK_Z) all show "noData".
- Status Register:** A list of status indicators, all showing "OK".
- Data Plot:** A graph showing acceleration data with a cursor value of -6.2 at sample 281. The scale is set to 7g.

1. Automatic mode in the ADIS1622x products uses an internal timer to trigger new data capture events.
2. Since the ADISUSBZ doesn't connect to the "Busy" signal, DIO1 per factory default, use the LEDs on the ADIS16223/PCBZ to determine if the device is busy. Do not attempt to read when the LED is on. Note that the ADISUSBZ takes a few seconds to read and process the data. Keep the capture period of above 10 seconds for best results in read-back.
3. This screen shows a quick example. The AVG_CNT is extended to 64 so that the DIO1 LED is on longer for observation.
4. Click "Start" to begin, once the settings are finished.

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ADIS1622x Software Tips, Event Trigger Mode

The screenshot shows the ADIS16220 software interface with the following sections:

- Buffer CAPT_CTRL:** Pre-Trigger: 128; Capture Mode: **Event** (indicated by a blue arrow); Arm button; Automatic Re-arm checkbox; Power Down Between Captures checkbox; Write Capture to Flash Memory checkbox; Enable Band Pass Filter checkbox; Read Flash and Write to Flash buttons.
- Timer CAPT_PRD:** Units: Minutes; Interval: 1; Timer Value: OFF.
- AVG_CNT:** Capt. Duration: 0.23 sec; 1 (dropdown).
- Buffer Data:** Read button; Capt_SUPPLY (V): 3.1885; Capt_TEMP (C): 25.28; CAPT_PEAK_X (g): -2.6035; CAPT_PEAK_Y (g): -2.6846; CAPT_PEAK_Z (g): 2.0409.
- Data Log:** Data Log OFF; File Count: 0.
- Self Test:** ON (radio button); OFF (radio button).
- Status Register:** Read Status and Clear buttons; List of status indicators: Supply < 3.150 V (OK), Supply > 3.625 V (OK), Flash Update Failure (OK), SPI Comm Failure (OK), Capture Period Violation (OK), Self-Test Diagnostic (OK), Flash Memory Failure (OK), Data Ready (SET), Alarm X (OK), Alarm Y (OK), Alarm Z (OK), System Alarm (OK), Alarm X Event (OK), Alarm Y Event (OK), Alarm Z Event (OK).
- Data Plot:** Graph showing acceleration data (X, Y, Z) over time. Cursor value: 6.7 sample 140. Scale(g): 7. Horiz. Offset: 0; Horiz. Scale: 1023. X acc, Y acc, and Z acc checkboxes are checked.

1. Use the pull-down menu to set the device up for “Event Capture Mode”.

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ADIS1622x Software Tips, Event Trigger Mode

The screenshot shows the iSensor software interface for the ADIS16220 Eval Rev 4. The 'Configuration' menu is open, and 'ALARMS' is selected. A blue arrow points to the 'ALARMS' option in the menu. The interface includes several sections:

- Buffer:** Pre-Trigger (128), Capt (Event), Automatic Re-arm (unchecked), Power Down Between Captures (unchecked), Write Capture to Flash Memory (unchecked), Enable Band Pass Filter (unchecked), Read Flash, Write to Flash.
- Timer:** CAPT_PRD, Units (Minutes), Interval (1), Timer Value (OFF).
- AVG_CNT:** Capt. Duration (0.23 sec), 1.
- Buffer Data:** Read, Capt_SUPPLY (V) 3.1885, Capt_TEMP (C) 25.28, CAPT_PEAK_X (g) -2.6035, CAPT_PEAK_Y (g) -2.6846, CAPT_PEAK_Z (g) 2.0409.
- Data Log:** File Count (0), Data Log (OFF).
- Self Test:** ON (unchecked), OFF (checked).
- Status Register:** Read Status, Clear, Supply < 3.150 V (OK), Supply > 3.625 V (OK), Flash Update Failure (OK), SPI Comm Failure (OK), Capture Period Violation (OK), Self-Test Diagnostic (OK), Flash Memory Failure (OK), Data Ready (SET), Alarm X (OK), Alarm Y (OK), Alarm Z (OK), System Alarm (OK), Alarm X Event (OK), Alarm Y Event (OK), Alarm Z Event (OK).
- Data Plot:** Cursor value (6.7), sample (140), Scale(g) (120), Horiz. Offset (0), Horiz. Scale (1023), X acc (checked), Y acc (checked), Z acc (checked).

2. Use the “ALARMS” option in the configuration pull-down menu to set up the trigger levels.

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ADIS1622x Software Tips, Event Trigger Mode, Alarms

Alarms Alm_Mag Alm_Ctrl

Alarm_X acceleration

Enable Alarm 1
Magnitude Write A1

Alarm_Y acceleration

Enable Alarm 2
Magnitude (g) Write A2

Alarm_Z acceleration

Enable Alarm 3
Magnitude (g) Write A3

Alarm 4

Enable Alarm 4
Source
 Temperature Power Supply
Polarity
 Greater Than Less Than
Magnitude (V) Write A4

Flash Memory

Read Flash Save To Flash

Alarms Alm_Mag Alm_Ctrl

Alarm_X acceleration

Enable Alarm 1
Magnitude (g) Write A1

Alarm_Y acceleration

Enable Alarm 2
Magnitude (g) Write A2

Alarm_Z acceleration

Enable Alarm 3
Magnitude (g) Write A3

Alarm 4

Enable Alarm 4
Source
 Temperature Power Supply
Polarity
 Greater Than Less Than
Magnitude (V) Write A4

Flash Memory

Read Flash Save To Flash

1. In this example, enable each alarm, then enter the acceleration threshold for triggering the capture.
2. In this case, enter “10”, then click “Write A1”.
3. Notice how the device changes the value to something close. This is the closest register value for the user entry.
4. Then repeat for each Alarm.
5. Click on “Save to Flash” to back the settings up in non-volatile flash memory.
6. Click on “X” in upper right hand corner to exit.

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ADIS1622x Software Tips, Event Mode Capture Example

The screenshot shows the ADIS16220 Eval Rev 4 software interface. The 'Buffer' section has 'DisArm' selected in the 'Capture Mode' dropdown, indicated by a blue arrow. The 'Timer' section shows 'Interval' set to 1 minute and 'Timer Value' set to OFF. The 'AVG_CNT' section shows 'Capt. Duration' set to 0.23 sec and 'AVG_CNT' set to 1. The 'Buffer Data' section shows a 'Read' button and the following values: Capt_SUPPLY (V) 3.1677, Capt_TEMP (C) 25.28, CAPT_PEAK_X (g) 98.0759, CAPT_PEAK_Y (g) -63.8199, and CAPT_PEAK_Z (g) 52.6047. The 'Status Register' section shows a list of status indicators, all of which are 'OK' or 'SET'. The 'Data Plot' section shows a graph of acceleration data (X, Y, Z) with a cursor value of 6.7 at sample 140. The graph shows a sharp peak in acceleration followed by a decay. The 'Scale(g)' is set to 120. The 'Horz. Offset' is 0 and the 'Horz. Scale' is 1023. The 'X acc', 'Y acc', and 'Z acc' checkboxes are all checked.

1. Click on “Arm” and notice that the DIO1 LED light turns on.
2. Tap the assembly on non-valuable surface. Increase the intensity of the tap until the capture triggers.
3. This will be evident when the DIO1 LED is not longer lit.
4. Click on “DisArm,” which is the same button that was “Arm” at the start of the process.
5. Under “Buffer Data,” click “Read” to plot the captured data on the screen.

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ADIS1622x Software Tips, Filtering, No Filtering Enabled

Buffer CAPT_CTRL

Pre-Trigger: 64
Capture Mode: Manual
Trigger: [Button]

Power Down Between Captures
 Event Alarm Write to Flash
 Enable Band Pass Filter

[Read Flash] [Write to Flash]

Timer CAPT_PRD

Units: Seconds
Interval: 0

AVG_CNT

Capt. Duration: 0.23 sec
[Dropdown: 1]

Buffer Data

[Read]

Capt_SUPPLY (V): 3.2788
Capt_TEMP (C): 28.57
CAPT_PEAK_X (g): -2.6083
CAPT_PEAK_Y (g): -2.532
CAPT_PEAK_Z (g): 1.5354

Status Register

[Read Status] [Clear]

Supply < 3.150 V	OK
Supply > 3.625 V	OK
Flash Update Failure	OK
SPI Comm Failure	OK
Capture Period Violation	OK
Self-Test Diagnostic	OK
Flash Memory Failure	OK
Data Ready	SET
Alarm X	OK
Alarm Y	OK
Alarm Z	OK
System Alarm	OK
Alarm X Event	OK
Alarm Y Event	OK
Alarm Z Event	OK

Data Plot

Cursor value: 1.2
sample: 5

Scale(g): 1.5

Horz. Offset: 0
Horz. Scale: 1023

X acc
 Y acc
 Z acc

1. The ADIS1622x are wide-band filters.
2. Lower frequency applications tend to value lower noise.
3. The filtering helps optimize the noise and frequency content of the data capture.
4. This plot is when no filters are enabled and the device is in its widest bandwidth.

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ADIS1622x Software Tips, Band-Pass Filtering

The screenshot shows the ADIS16220 software interface with the following sections:

- Buffer CAPT_CTRL:** Pre-Trigger (64), Capture Mode (Manual), Trigger button, Enable Band Pass Filter (checked), Write to Flash button.
- Timer CAPT_PRD:** Units (Seconds), Interval (0).
- AVG_CNT:** Capt. Duration (0.23 sec), 1.
- Buffer Data:** Read button, Capt_SUPPLY (V) 3.2776, Capt_TEMP (C) 28.1, CAPT_PEAK_X (g) 0.8774, CAPT_PEAK_Y (g) 0.8202, CAPT_PEAK_Z (g) -0.8202.
- Data Log:** Datalog ON, File Count 31.
- Self Test:** ON/OFF radio buttons.
- Status Register:** Read Status, Clear, Supply < 3.150 V (OK), Supply > 3.625 V (OK), Flash Update Failure (OK), SPI Comm Failure (OK), Capture Period Violation (OK), Self-Test Diagnostic (OK), Flash Memory Failure (OK), Data Ready (SET), Alarm X (OK), Alarm Y (OK), Alarm Z (OK), System Alarm (OK), Alarm X Event (OK), Alarm Y Event (OK), Alarm Z Event (OK).
- Data Plot:** Cursor value 1.2, sample 5, Scale(g) 1.5, X acc, Y acc, Z acc checkboxes, Horiz. Offset 0, Horiz. Scale 1023.

1. Enable the band-pass filter.
2. Click on Trigger.
3. Notices the lower amount of noise and the fact that it is centered around 0g now.



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ADIS1622x Software Tips, Band-Pass & Low-Pass Filtering

The screenshot shows the ADIS16220 software interface with the following sections:

- Buffer CAPT_CTRL:** Pre-Trigger (64), Capture Mode (Manual), Trigger button. Options: Power Down Between Captures, Event Alarm Write to Flash, Enable Band Pass Filter. Buttons: Read Flash, Write to Flash.
- Timer CAPT_PRD:** Units (Seconds), Interval (0).
- AVG_CNT:** Capt. Duration (1.10 sec), AVG_CNT (64) - highlighted with a blue arrow.
- Buffer Data:** Read button. Values: Capt_SUPPLY (V) 3.2776, Capt_TEMP (C) 28.57, CAPT_PEAK_X (g) -0.1097, CAPT_PEAK_Y (g) 0.1144, CAPT_PEAK_Z (g) 0.1192.
- Data Log:** File Count (32), Datalog ON.
- Self Test:** ON, OFF.
- Status Register:** Read Status, Clear. List of status items with OK or SET indicators.
- Data Plot:** Graph showing acceleration data. Cursor value 1.4, sample 32. Scale (g) 1.5. X, Y, and Z axes are checked.

1. Click on the **AVG_CNT** pull-down menu and select **64**.
2. Click on **Trigger**.
3. Observe the lower noise and longer capture time.

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ADIS16227 Software Tips: Basic Setup

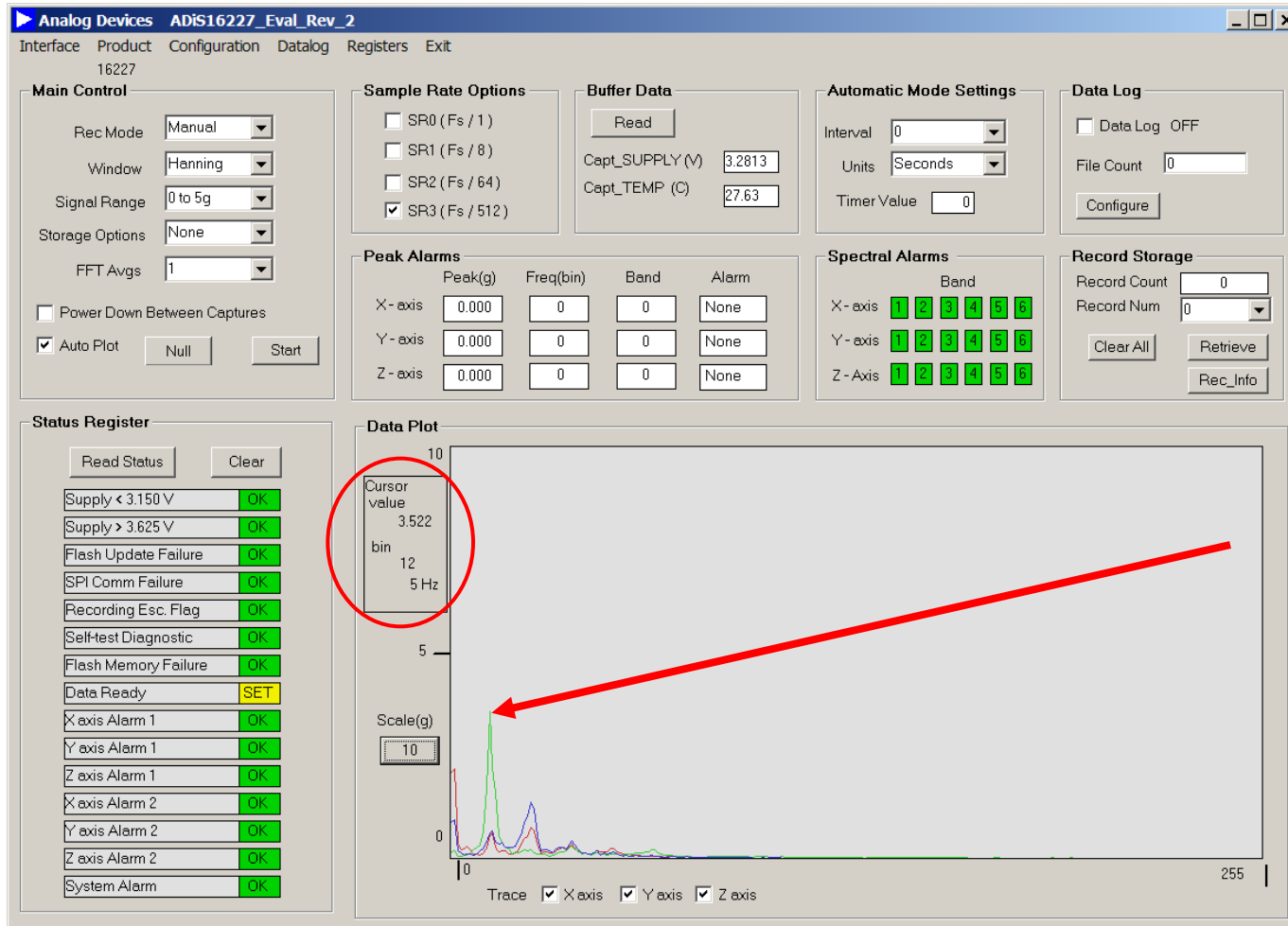
The screenshot shows the ADIS16227 software interface with the following settings:

- Main Control:** Rec Mode: Manual; Window: Hanning; Signal Range: 0 to 5g; Storage Options: None; FFT Avgs: 1; Auto Plot: Null; Start button.
- Sample Rate Options:** SR3 (Fs / 512) is selected.
- Buffer Data:** Read button; Capt_SUPPLY (V): 3.2813; Capt_TEMP (C): 27.16.
- Automatic Mode Settings:** Interval: 0; Units: Seconds; Timer Value: 0.
- Data Log:** Data Log: OFF; File Count: 0; Configure button.
- Peak Alarms:** X-axis, Y-axis, Z-axis: Peak(g) 0.000, Freq(bin) 0, Band 0, Alarm None.
- Spectral Alarms:** X-axis, Y-axis, Z-axis: Band 1-6.
- Record Storage:** Record Count: 0; Record Num: 0; Clear All, Retrieve, Rec_Info buttons.
- Status Register:** Read Status, Clear buttons; Status list: Supply < 3.150 V (OK), Supply > 3.625 V (OK), Flash Update Failure (OK), SPI Comm Failure (OK), Recording Esc. Flag (OK), Self-Test Diagnostic (OK), Flash Memory Failure (OK), Data Ready (SET), X axis Alarm 1 (OK), Y axis Alarm 1 (OK), Z axis Alarm 1 (OK), X axis Alarm 2 (OK), Y axis Alarm 2 (OK), Z axis Alarm 2 (OK), System Alarm (OK).
- Data Plot:** Cursor value: 1.790; bin: 0; 0 Hz; Scale(g): 2; Trace: X axis, Y axis, Z axis.

1. Double click on the ADIS16227*.exe file to start the software.
2. Make sure that the settings under “Main Control” and “Sample Rate Options” match those in this graphic. The Signal Range, FFT Avgs, SR3 settings are the most common settings that need to be changed for this demo.
3. Take a baseline measurement by clicking on “Start”.
4. Click on “Null” and hold the device in a stationary position until it completes.
5. Take another measurement by hitting “Start” and notice that the DC response is much lower.

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ADIS16227 Software Tips: Basic Demo



1. Shake the ADIS16227 in a repetitive manner and click on “Start.” Continue the shaking until the software completes collecting data.
2. After data collection is complete, use the mouse pointer to measure the response.
3. In this case, the mouse pointer is held over the peak of the green response.
4. Color coding:
X = red
Y = green
Z = blue

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ADIS16227 Software Tips: Spectral Alarm Demo

The screenshot shows the ADIS16227 software interface. The 'Configuration' menu is open, and 'Alarm Spectrum' is selected. The interface is divided into several sections:

- Main Control:** Includes Rec Mode, Window, Signal Range (0 to 5g), Storage Options (None), FFT Avgs (1), Power Down Between Captures (unchecked), and Auto Plot (checked).
- Buffer Data:** Includes a Read button, Capt_SUPPLY (V) (3.2813), and Capt_TEMP (C) (25.75).
- Automatic Mode Settings:** Includes Interval (0), Units (Seconds), and Timer Value (0).
- Data Log:** Includes Data Log (OFF), File Count (0), and a Configure button.
- Peak Alarms:** A table showing Peak(g), Freq(bin), Band, and Alarm for X, Y, and Z axes.
- Spectral Alarms:** A table showing Band for X, Y, and Z axes.
- Record Storage:** Includes Record Count (0), Record Num (0), Clear All, Retrieve, and Rec_Info buttons.
- Status Register:** Includes Read Status and Clear buttons, and a list of status indicators (e.g., Supply < 3.150 V, Flash Update Failure, SPI Comm Failure, Recording Esc. Flag, Self-test Diagnostic, Flash Memory Failure, Data Ready, X axis Alarm 1, Y axis Alarm 1, Z axis Alarm 1, X axis Alarm 2, Y axis Alarm 2, Z axis Alarm 2, System Alarm).
- Data Plot:** A graph showing Scale(g) vs. Trace (X axis, Y axis, Z axis). The Y-axis ranges from 0 to 10. The X-axis ranges from 0 to 255. A cursor value of 0.215 is shown at bin 56 (22 Hz).

1. Use the “Configuration” drop-down menu to click on the “Alarm Spectrum” option.



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ADIS16227 Software Tips: Spectral Alarm Demo

Band #	F-Low	F-High	ALM1 X	ALM1 Y	ALM1 Z	ALM2 X	ALM2 Y	ALM2 Z
1	1	50	1	0	0	0	0	0
2	50	80	2	0	0	0	0	0
3	80	120	3	1	0	0	0	0
4	120	170	2	2	2	0	0	0
5	170	220	3	3	3	0	0	0
6	220	255	2	2	2	0	0	0

2. Under “Sample Rate Option,” use the drop-down menu to select “3”.
3. Change each entry by highlighting the numbers and then typing it in.

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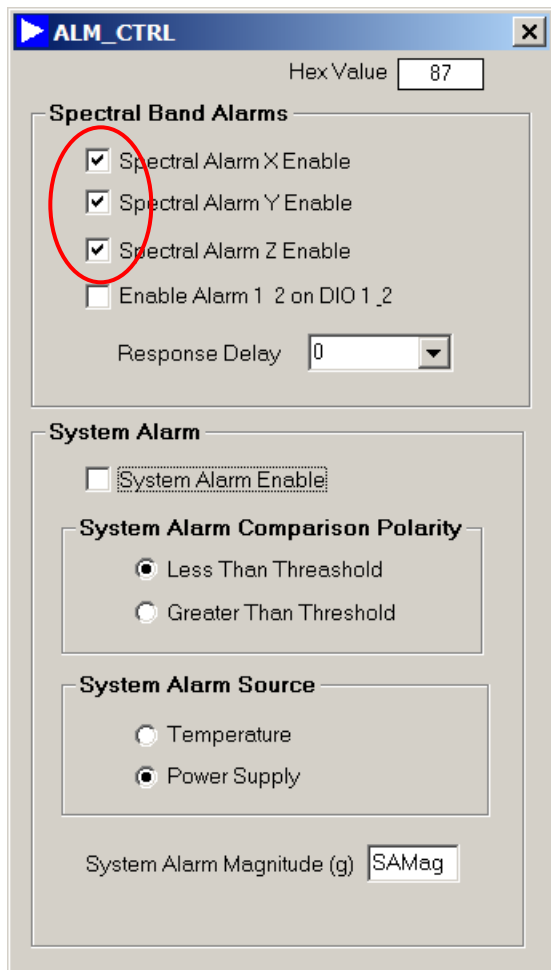
ADIS16227 Software Tips: Spectral Alarm Demo

Band #	F-Low	F-High	ALM1 X	ALM1 Y	ALM1 Z	ALM2 X	ALM2 Y	ALM2 Z
1	1	40	1	1	1	2	2	2
2	40	80	3	3	3	4	4	4
3	80	120	1	1	1	2	2	2
4	120	150	3	3	3	4	4	4
5	150	190	1	1	1	2	2	2
6	190	255	3	3	3	4	4	4

4. Enter all of the numbers show for this demo in the graphic.
5. Click on “Write All” to save them to the flash memory in the ADIS16227.
6. Enable the “X” axis band to plot by click on the “X” dot.
7. Minimize this window and return the main window.

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ADIS16227 Software Tips: Spectral Alarm Demo



8. After returning to the main window, use the “Configuration” drop-down menu to select the “ALM_CTRL” option.
9. Use the ALM_CTRL menu to enable all three (x,y,z) spectral alarms.
10. Close the window to return to the main menu.

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ADIS16227 Software Tips: Spectral Alarm Demo

The screenshot shows the ADIS16227 software interface with the following sections:

- Main Control:** Rec Mode (Manual), Window (Hanning), Signal Range (0 to 5g), Storage Options (None), FFT Avgs (1), Power Down Between Captures (unchecked), Auto Plot (checked).
- Sample Rate Options:** SR0 (Fs / 1), SR1 (Fs / 8), SR2 (Fs / 64), SR3 (Fs / 512) (checked).
- Buffer Data:** Read button, Capt_SUPPLY (V) 3.2813, Capt_TEMP (C) 25.28.
- Automatic Mode Settings:** Interval (0), Units (Seconds), Timer Value (0).
- Data Log:** Data Log OFF, File Count (0), Configure button.
- Peak Alarms:**

	Peak(g)	Freq(bin)	Band	Alarm
X-axis	2.766	1	1	Fault
Y-axis	2.674	11	1	Fault
Z-axis	1.427	23	1	Warning
- Spectral Alarms:** A 3x6 grid of colored buttons (1-6) for X, Y, and Z axes.
- Record Storage:** Record Count (0), Record Num (0), Clear All, Retrieve, Rec_Info buttons.
- Status Register:** Read Status, Clear, and a list of status indicators (e.g., Supply < 3.150 V: OK, X axis Alarm 1: SET).
- Data Plot:** A graph showing Scale(g) vs. Time. The Y-axis ranges from 0 to 10g. The X-axis shows time in seconds (0 to 255). A red horizontal line is at 2g, and a yellow horizontal line is at 1g. A cursor value of 0.188 is shown at 64 Hz. The plot shows a peak at approximately 1g.

11. Repeat the shaking motion and click on "Start".
12. Observe the Peak Alarms and Spectral Alarms outputs.



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More Information on *i*Sensor Evaluation Tools:

- **www.analog.com/isensor-evaluation**