

*i*Sensor[®] PC-USB Evaluation System

Preliminary Technical Data

GENERAL DESCRIPTION

The ADIS/EVAL/USB is a PC-based evaluation system for many of the SPI-output *i*Sensor[®] products. This system comes with a USB Interface Board, A-to-B USB cable, and the *i*Sensor[®] Documentation CD. This CD contains Evaluation Software, along with all of the documentation for each *i*Sensor[®] product.

GETTING STARTED QUICKLY

Getting started with this system is simple process. Here are the steps to getting started:

Step #1 - Download software to PC

The evaluation software for each *i*Sensor[®] product is available on the web or in CD format. Online software downloads can be found at the *i*Sensor[®] Evaluation Tool web site. Go to: <u>www.analog.com/isensor</u>, click on *i*Sensor[®] Evaluation Tools link, then click on the Evaluation Software Downloads link, which will display a table of each software package, which are product-specific. Click on the appropriate software package (example filename: 350ES(6).zip) and follow the prompts to save it to a temporary location on the local PC. When the *i*Sensor[®] Documentation CD is inserted into the CD drive, it will automatically load a greeting page. Click on "Evaluation Software Downloads," then on the appropriate link (productspecific), and then follow the prompts to save this file to a temporary location on the local PC.

Step #2 - Install evaluation software package

Unzip the installation package to a temporary location, and then double-click on setup.exe, and follow the prompts. When asked to replace system files, click "No," and the evaluation software will still work fine. Refer to Figure 1, Figure 2, and Figure 3 for windows that will appear during this step.

Step #3 - Install giveio.exe driver

The giveio.exe driver is located in the software's new directory, which is normally under a subdirectory called "Analog Devices *i*Sensor[®]," located in the Program Files folder. Double-click on the file, giveio.exe, and follow the prompts to install this driver. Refer to Figure 4, Figure 5, and Figure 6 for windows that will appear during this Step.

Step #4 - Install USB driver

Connect the A-to-B USB cable to the PC, and then to the USB Interface PCB. The USB driver installation screen will automatically appear on the screen in a few seconds. Follow the

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prompts to install this driver. On some machines, the driver installation screen will appear again, after clicking on "Finish." In this case, follow the prompts and complete the process. Refer to Figure 7 and Figure 8 for the windows that will appear during this step.

Step #5 - Connect ADIS16xxx/PCB to USB Interface PCB

Disconnect the USB Interface board from the cable. Set JP1 jumper for the appropriate power supply.

Table 1. JP1	Power Suppl	y Settings
--------------	-------------	------------

+3.3V	+5V		
ADIS16003	ADIS16003	ADIS16251	
ADIS16006	ADIS16006	ADIS16255	
ADIS16201	ADIS16080	ADIS16350	
ADIS16203	ADIS16100	ADIS16354	
ADIS16204	ADIS16250	ADIS16355	
ADIS16209			

Note: If a product is listed twice, it can be run at +3.3 or +5V.

Connect it to J1 on the ADIS16xxx/PCBZ board, using connector J1, located on the bottom side of the ADISEVAL/USBZ. Refer to Figure 9 and Figure 10 and Figure 11 for diagrams of these connections. J1 is not "keyed," so exercise caution in making this connection.

Step #6 - Launch evaluation software

Hook the USB Interface board to the cable and then launch the evaluation software by double clicking on the *.exe file. The program will also be in the Start Programs menu in Windows. Figure 14 though Figure 18 offers some basic insights into the operation of each product's evaluation software. Note to European users: some software is sensitive to the decimal notation. If large or unreasonable numbers are observed, change the PC's regional setting to USA. Software packages are being updated to fix this, but were not complete at the time of this document's release.

ORDERING GUIDE

Model	Package Description
ADISEVAL/USBZ	<i>i</i> Sensor [™] PC-USB Evaluation System

NOTE: ADIS16xxx/PCBZ sold separately

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ADISEVAL/USBZ

£	🛃 ADIS16250 Evaluation Rev 1 Setup				
	Welcome to the ADIS16250 Evaluation Rev 1 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					

Figure 1. Installation Welcome Screen (Click OK)

🛃 ADIS16250 Evaluation Rev 1 Setup			
Begin the installati	ion by clicking the button below.		
ł	Click this button to install ADIS16250 Evaluation Rev 1 software to the specified destination directory.		
Directory: C:\Program Files\A	Analog Devices iSensors\ADIS16250\		
	Exit Setup		

Figure 2. Installation Launch Screen (click on computer button)

🛃 ADIS16250 Evaluation Rev 1 - Choose Program G 🔯
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 Administrative Tools
Analog Devices iSensors
Cancel

Figure 3. Program Group Menu (Click Continue)

Visual basic runtimes (SP2) installation	
Welcome to the INF-Tool Setup demo program which will in	stall
2 files in the <windows>\INF-Test directory on your comput</windows>	:er. Install
Please close any programs you have running, then click "In continue with the Setup program.	stall" to Close
Don't forget to read the helpfile for details about the enourm	ous
flexibility and smartness INF-Tool can bring to your installation	Ins!



License agreement	
[Name of your application] Author : [YOUR NAME] Version #.# from mm/dd/yyyy WWWeb : Your Website email : Your email Note : for each package, you may select an individual Licence template via the "Options" window of Step #8.	
END-USER LICENSE AGREEMENT FOR THIS SOFTWARE Important - read carefully:	~
To continue with this installation, you must agree to all terms of this license agreement.	
l agree Cancel	





Figure 6. Giveio.exe Installation Confirmation Menu (Click Yes)



Figure 7. USB Driver Installation (Click Next)

Hardwa	re Installation
<u>.</u>	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

Figure 8. USB Driver Hardware Installation (Click on Continue Anyway)



Figure 9. USB Interface PCB connection with ADIS160xx/PCBZ, ADIS161xx/PCBZ, ADIS162xx/PCBZ, Top View



Figure 10. USB Interface PCB connection with ADIS160xx/PCBZ, ADIS161xx/PCBZ, ADIS162xx/PCBZ, Bottom View



Figure 11. USB Interface PCB connection with ADIS135x/PCBZ, Top View

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Figure 12 - iSensorTM PC-USB Interface Board Layout (Top View)



Figure 13 – *i*Sensor[™] PC-USB Interface Board Layout (Bottom View)

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ADIS16003 / 16006	5 / 16080 / 16100 Evaluation -	Rev 1.1		
Interface Device Read T	Temp Run Test FFT Print Help Ex	dt 3		
Program Setup Interface Parallel Potr 378 Device Adis16003	Part Setup D	ata Setup Plot Continuous Loop Continuous Loop Continuous Loop Continuous Loop Continuous Loop Continuous Loop Continuous	Data Data Data Data Data Data Data Data	
Time ADIS1	16003 X Accel Channel - (G)			
2.498 - 1.873 - 5				Statistics Temp 25.75 Average 0.06 Pk Pk 0.06 Max 0.08 Min 0.02
1.249 - 0.624 -				AC RMS 0.01 Ts (mS) 1.30
0.000				
-1.249				
-2.498	1 512	1024	1 1536	1 2048

FIGURE FLAG NOTES:

- 1. Set the Device type to ADIS16003 or ADIS16006. Set the Interface to parallel and set the port address per ReadMeFirst.PDF
- 2. Set the axis being tested. Test function exercises a self-test during a single sweep on the screen.
- 3. Plot and log data to files.
- 4. Set up data logging parameters.
- 5. Right click over Y-Axis to adjust scale and offset of the plot.

Figure 14. ADIS16003 and ADIS16006 Evaluation Software

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ADISEVAL/USBZ



FIGURE FLAG NOTES:

- 1. Set the Device type to ADIS16080 or ADIS16100. Set the Interface to parallel and set the port address per ReadMeFirst.PDF
- 2. Set the output channel being tested. Test function exercises a self-test during a single sweep on the screen.
- 3. Plot and log data to files.
- 4. Set up data logging parameters.
- 5. Right click over Y-Axis to adjust scale and offset of the plot.

Figure 15. ADIS16080 and ADIS16100 Evaluation Software

Analog Devices - ADIS16201 Eva Analog Devices - ADIS16201 Eva	aluation Software - Rev 2.1	
Interface Alarms Calibration GPIO/MS	C Register About Help Exit	
		Sample Rate Settings
Output Registers		SMPL_PRD
		▲ ▶ 10
	-1.5 -1.0 -0.5 0 +0.5 +1.0 +1.5	Sample Rate (mS) 1.331
XACCL_001 (G) 0.007	X_ACCEL	AVG_CNT 4
YACCL_OUT (G) 0.006	Y_ACCEL	
AUX_ADC (V) 1.659	·90 · 0 · · 0 · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · 0 · · · · 0 · · · · 0 · · · · 0 · · · · 0 ·	Roll Avg Count 128
TEMP_OUT (dgrC) 18.420		Avg Rate (Sec) 0.17
XINCL_OUT (dgr) 0.400	X_INCL	
YINCL_OUT (dgr) -0.400	Y_INCL	- Auxiliary DAC (AUX DAC) -
Data Read New		
Status OK	Status Register	
	Read Status Bead	Output (Volts) 0.0000
Loop Setup	Power Supply Low OK	
2 Start Stop	Power Supply Lon OK	Powerdown (PWR_MDE)
Loop Delay (mS) 25.0	Fower Supply High UK Reset to	
Loop Delay (IIIS) 20.0	Control Write Flag OK Defaults	Set Time (Sec) 0.0
🗆 Log Data to File 🤇 🕽	SPI Write Flag OK	
	Alarm1 Set OK	
Pile Adis16201 1	Alarm2 Set OK	Self Test
		Seir-Lest Disabled

FIGURE FLAG NOTES:

- 1. Perform a single read of the ADIS16201's output data
- 2. Start and stop continuous reading of the ADIS16201's output data. Set the acquisition loop delay time. This provides rough control over sample times. Please note that this data will not have a high degree of coherence.
- 3. Select the file data logging option.
- 4. Configure the ADIS16201's internal sample rate and filter response.

Figure 16. ADIS16201 Evaluation Software

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FIGURE FLAG NOTES:

- 1. Perform a single read of the ADIS16203's output data
- 2. Start and stop continuous reading of the ADIS16203's output data. Set the acquisition loop delay time. This provides rough control over sample times. Please note that this data will not have a high degree of coherence.
- 3. Select the file data logging option.
- 4. Configure the ADIS16203's internal sample rate and filter response.
- 5. Graphical orientation. Note that for incline angle 0°, the corner dot would be in the lower, left hand corner.
- 6. Alarm monitoring. Note that these turn red on alarm condition. They maintain their status until the Reset button is pressed, even if the error condition has cleared.

Figure 17. ADIS16203 Evaluation Software

Analog Devices - Al 6 50 E	valuation Software - Rev 1.0		
Interface Alarms User Cal GPIO/MS0	Register Aux DAC Powerdown	About Help Exit	9
Angle 0 45 90 Output 1 1 1 220	135 180 225 270 I I I I	0 315 360 Scale (S	320 Read Setup Defaults
240			
-320 - Output Registers 1 Read SUPPLY_OUT (V) 4.985 GYRO (Dgr/S) 0.88 AUX_ADC (V) 2.499 Temp Out (dgr) 36.04 Angle Out (dgr) 0.33 Data Read New Status OK	Read Status Power Supply Low OK Power Supply Low OK Power Supply High OK Control Write Flag OK SPI Write Flag OK Gyro Overrange OK Diag Error OK Alarm1 Set OK	Loop Setup 2 Start Stop Loop Delay (mS) 25.0 Stop after 1 sweep 3 Log Data to File File Adis16250 1 Loop Count	Sample Rate Settings SMPL_PRD I I Sample Rate (mS) 3.91 AVG_CNT I I I AVG_CNT I I I I AVG_CNT I I I I I I I I I I I I I I I I I I I

FIGURE FLAG NOTES:

- 1. Perform a single read of the ADIS1625x's output data
- 2. Start and stop continuous reading of the ADIS1625x's output data. Set the acquisition loop delay time. This provides rough control over sample times. Please note that this data will not have a high degree of coherence.
- 3. Select the file data logging option.
- 4. Configure the ADIS1625x's internal sample rate and filter response.
- 5. Set the measurement range from the three options available in the ADIS1625x.
- 6. Exercise the user calibration functions.

NOTE: The ADIS16255 can use this software. The ADIS16251 can use this software, but the rate output measured with be 4 times greater than the actual angular rate.

Figure 18. ADIS1625x Evaluation Software

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Figure 19. ADIS1635x Evaluation Software

FIGURE FLAG NOTES:

- 1. Perform a single read of the ADIS1635x's output data. Also select "Loop" checkbox for continuous data scroll across the screen. Use the Loop delay box to add delay between each sample displayed to the screen.
- 2. Select individual sensor outputs for display.
- 3. Use Configuration menu to access sample rate, filtering, calibration, I/O control and all other internal configuration controls for the ADIS1635x products.
- 4. Use Device option to select which part to evaluate.