

USB 3.0 Quad-Channel IEPE Vibration Sensor Measurement System

EVAL-CN0582-USBZ

Product Overview

12-20-2023

For the most up-to-date information, visit www.mouser.com or the supplier's website.

Description

Analog Devices Inc. EVAL-CN0582-USBZ USB 3.0 Quad-Channel IEPE Vibration Sensor Measurement System is a system board capable of reading data from analog Integrated Electronics PiezoElectric (IEPE) accelerometers. The analog IEPE inputs feature current source switches to accommodate sensors that might need external power, and individual channel offset voltage settings. This board also provides a variable amplitude and frequency sinusoidal signal to an external vibration shaker as a stimulus. This allows the EVAL-CN0582-USBZ USB 3.0 quad-channel IEPE vibration instrument to signal an external shaker and measure the data from a mounted sensor. This forms a closed feedback loop.



The EVAL-CN0582-USBZ USB 3.0 quad-channel IEPE vibration instrument comes with evaluation software that provides full control over all the board's functions. The functions include enabling current sources and AC/DC coupling, input bias adjustment, data capture in time and frequency domains, providing a single-tone/sweeping sinusoid, and data export. Integrated Electronics Piezoelectric (IEPE) and IEPE-compatible accelerometers and velocity sensors are used in a wide array of Condition-based Monitoring (CbM), building monitoring, and structural analysis applications.

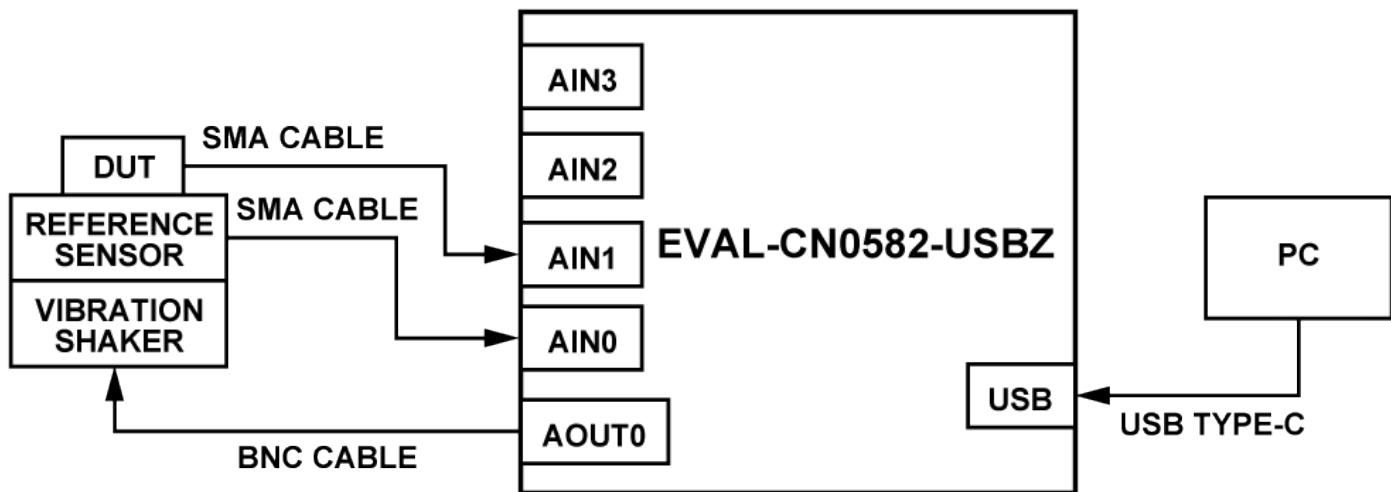
Features

- For the evaluation of CN0582
- 4-channel simultaneous data acquisition
- On-board IEPE excitation
- IEPE input channel offsetting
- Signal generator:
 - Single-tone or linear sweep
 - Electronic loopback testing
 - Shaker table excitation
- CN0582 evaluation software:
 - System configuration
 - Graphical display
 - File export (data acquisition, vibration test)

Applications

- Condition-based Monitoring (CbM)
- Building monitoring
- Structural analysis

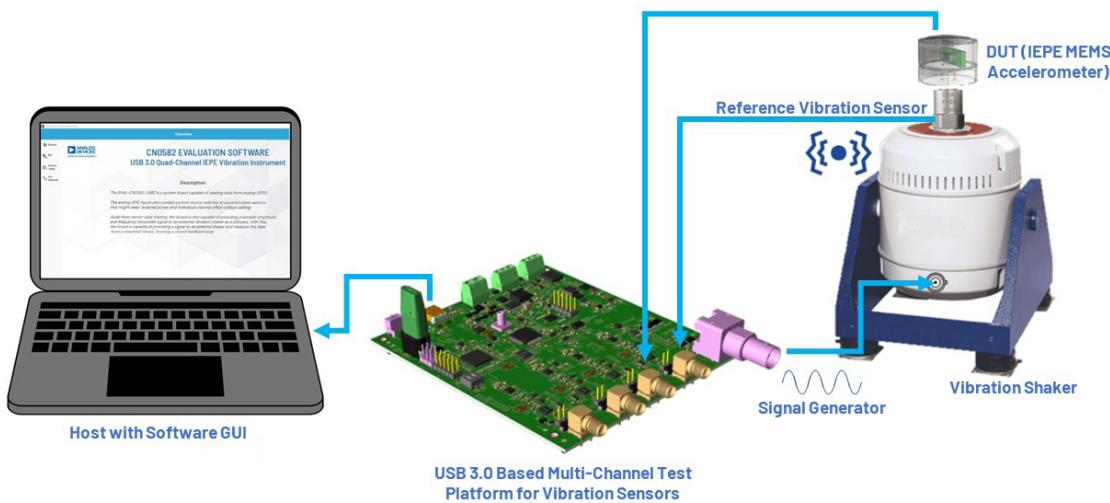
EVAL-CN0582-USBZ System Test Setup



Required Equipments

- EVAL-CN0582-USBZ evaluation board
- CN0582 evaluation software
- Host PC (Windows®)
- Vibration shaker (9363-ED-2F4K-5N, King Design)
- Reference and test sensors (Reference: PCBM352C67)
- Audio analyzer (Audio Precision® APX525)
- Oscilloscope (Rohde and Schwarz® RT1004)
- USB Type-C™ cable
- SMA cable
- BNC to BNC cable

Hardware Setup



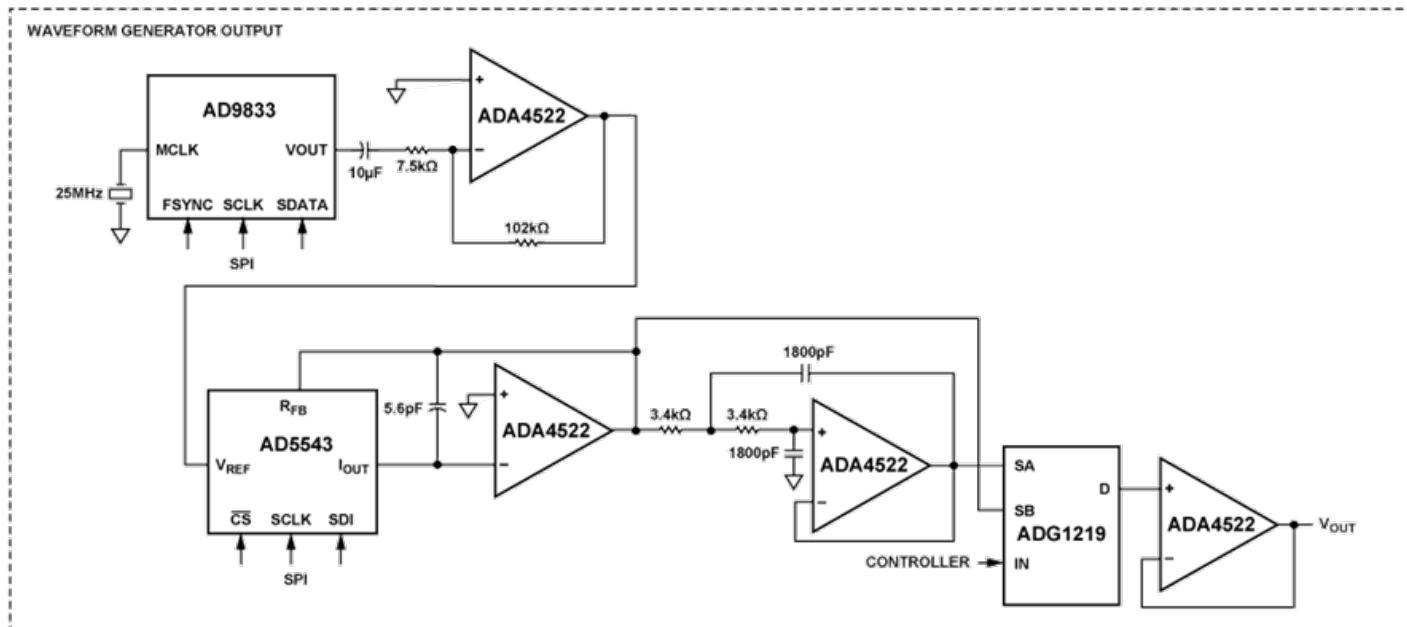
Hardware Specifications

Specifications		Min	Typ	Max	Unit/Remarks
Power Requirements					
Input	Voltage	4.5	5	6	V
	Current	500		600	mA
Analog Input					
IEPE	Full scale	0.1m ^g		10	V
	Bias			13	VDC
	Current source		4		mA
4 mA to 20 mA (CH3)	Resistance			249	Ω
	Power			0.25	W
THD + N			-87	-84	dB, 3.3 Vp-p at 1 kHz
SNR			99		dB, 10 Vp-p at 20 Hz to 20 kHz
Accuracy				1	% error (at greater than 100 mV)
Analog Output					
Voltage		0.5		7	V peak-to-peak
Frequency		0.02		25	kHz
THD + N			-52	-55	dB, 7 Vp-p at 20 Hz to 20 kHz
Accuracy				1	% error

*Based on PGA setting of 1.



System Block Diagram



Mouser Part Number

[View Part](#)

To learn more, visit www.mouser.com/adi-eval-cn0582-usbz/