



EV-CBM-VOYAGER3-2Z

Voyager 3 Wireless Vibration Monitoring Platform

MEMS-based wireless vibration monitoring kit for accelerating asset monitoring and solution development

The MEMS-based Wireless Vibration Monitoring Platform is a complete evaluation solution that includes:

- Mechanical mounting and measurement capability up to 2.6kHz bandwidth
- 3-axis ultra-low power, ultra-low noise MEMS accelerometer technology
- Low power 16-bit ADC
- Ultra low power microcontroller and robust low power SmartMESH wireless radio

It enables users to:

- Rapidly deploy a wireless solution to a machine or test setup
- Evaluate ADI MEMS sensor technology for vibration monitoring
- Evaluate ADI SmartMESH technology for industrial wireless sensing
- Accelerate their asset monitoring and solution development

Product Details:

The Wireless Vibration Monitoring Platform is a system evaluation solution for a wireless signal chain for MEMS-accelerometer based vibration monitoring. The system solution combines mechanical attach, hardware, firmware, and PC software to enable rapid deployment and evaluation of a three-axis vibration monitoring solution. The module can be directly attached to a motor or fixture, via a ¼-28 stud. It can also be combined with other modules on the same wireless mesh network to provide a broader picture with multiple sensor nodes, as part of a Condition Based Monitoring (CbM) system.

Solution Overview

The CbM hardware signal chain consists of a three-axis ADXL356 accelerometer mounted to the base of the module. The outputs of the ADXL356 are conditioned and converted to digital with three AD7685 16-bit daisy chain ADCs. The ADC outputs are buffered and transformed to the frequency domain in the ADuCM4050 low power microcontroller and from there streamed to the SmartMESH IP mote. From the SmartMESH chip time domain and FFT data are wirelessly streamed to the SmartMESH IP Manager. The manager connects to a PC and visualization and saving of the data can take place. Data is displayed as raw time-domain data, and FFT data. Additional summary statistics information on the time-aggregated data are available. The full Python code of the PC-side GUI, as well as the C firmware deployed to the module is made available to enable customer adaptation.

The EV-CBM-VOYAGER3-1Z evaluation kit consists of the following items:

- SmartMesh IP Manager (DC2274A) USB Dongle
- Wireless Vibration Monitoring Platform
- JTAG Cable (only needed for firmware upgrade)

The EV-CBM-VOYAGER3-2Z evaluation kit consists of the following items:

- Wireless Vibration Monitoring Platform
- Batteries