Accelerate Your
Condition Monitoring
with Voyager 3

What Is Condition Monitoring?

Condition monitoring, also known as condition-based monitoring (CbM), is a predictive maintenance strategy that monitors the condition of assets using different types of sensors. It uses the data extracted from the sensors to monitor assets in real time, establish trends, predict failure, and even calculate the lifetime of an asset.

Vibration monitoring is a form of CbM that monitors vibrations from assets to determine the presence of any abnormal vibrational patterns, which are an indicator of advanced wear, malfunctioning parts, and loose mounting, amongst other issues.

The Impact of Condition Monitoring

Increased productivity
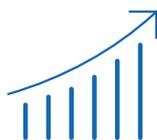
Increased asset life

Reduced maintenance cost

Reduced downtime

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Platform Details

Voyager 3 is a system evaluation solution from ADI for wireless MEMS accelerometer-based vibration monitoring. The system solution combines mechanical attach features, hardware, firmware, and PC software to enable rapid deployment and evaluation of a 3-axis vibration monitoring solution. The module can be directly attached to a motor or fixture.

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 system.

Motes (Wireless Nodes)

Hops

Network Manager

Customer Software

Direct
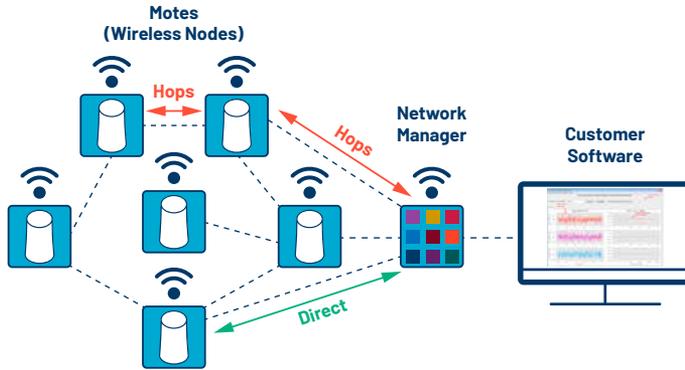
The Voyager kit supports ADI SmartMesh® mote hopping. This is where a mote, which is out of range of the network manager, can hop through an in-range mote. The multiple hops network ensures that out-of-range motes can stream data to the network manager, which extends the reach and the scale of the solution deployment.

Features

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Multi-axis vibration measurement	Complete signal chain for precision data acquisition	Mechanical design for improved HF vibration performance	Robust wireless link with >99.999% reliability	Ultra low power consumption	Open-source software for flexible data collection

High Level Signal Chain Overview of Voyager 3 Mote

ADXL356 → ADA4807-1 → AD7685 → ADuCM4050 → LTP5901
ADA4807-1 → AD7685
ADA4807-1 → AD7685
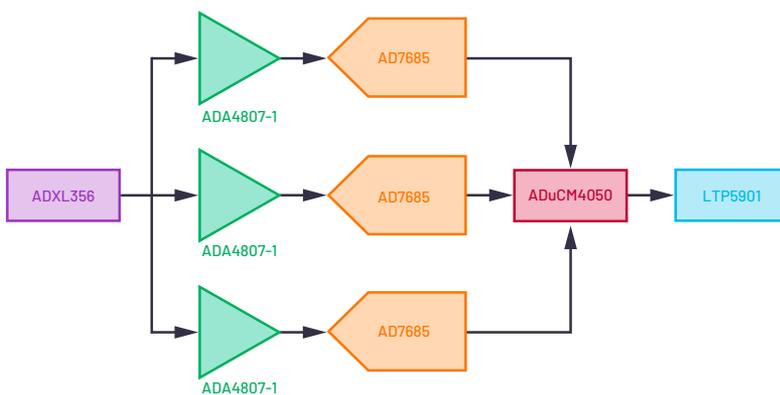
Component	Description
ADXL356	Low noise, low drift, low power, 3-axis MEMS accelerometer
ADA4807	Rail-to-rail input/output amplifier
AD7685	Low power, 16-bit, 250 kSPS ADC
ADuCM4050	Ultra low power Arm® Cortex®-M4F MCU
LTP5901	Robust, low power SmartMesh 802.15.4e

To find out more about the Voyager 3 platform, visit analog.com/voyager3.

Further support for the platform is available on the EngineerZone® at ez.analog.com/condition-based-monitoring.

ADI EngineerZone™
SUPPORT COMMUNITY

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