



Wireless Seismic and Vibration Monitor

Ultra low-power, low-cost Wireless Sensor Networks

www.metronomesystems.com

General Description

Continuous high-fidelity wireless accelerometer with multi-year battery lifetime – 3+ years with D-cell battery. Now it is possible to continuously monitor seismic signals and structural vibrations for years without changing batteries. Metronome Systems provides ultra-low power, highly reliable, true systems-level solutions for a broad suite of real-time sensing and control applications. Sensor network meshes can be hardened with use of Metronome Systems' *Sensing Relay Board*. Innovative IEEE802.15.4-compliant radio design by *Dust Networks* enables multi-year battery life on a single battery. Every system component is rated for industrial applications (-40°C to +80°C), enabling the use of the entire system in extreme environments.

System design

- Motion-triggered wake-up mode – 1.5 μA
- Ultra-low active power consumption (14 μA average)
- Low noise – 175 $\mu\text{g}/\sqrt{\text{Hz}}$
- Dynamic range – 12 bits; $\pm 2, 4, 8$ g programmable
- 200 Hz active bandwidth
- Built-in anti-aliasing filter
- Four 10-bit auxiliary analog inputs
- Over The Air (OTA) updating and reprogramming
- Power input 2.7-3.5V
- Rated -40°C to +80°C for extreme environments.

Wireless Sensor Networks

- *Dust Networks*' Eterna™ SoC WSN technology
- 2.4 GHz network operations
- FCC, CE, and IC modular certifications
- Automatic network formation
- Full-mesh networking can easily scale to tens of thousands of nodes
- Time-synchronized communication spanning 15 frequency channels eliminates in-network collisions and multipath fading effects
- Greater than 99.99% network reliability even in the most challenging environments
- Fully engineered RF transceiver, with power amplifier (at +20 dBm)
- Unprecedented low power consumption with 11 μA average power consumption with full mesh capabilities
- AES-128 bit encryption
- Compliant with IETF 6LoWPAN and IEEE 802.15.4e
- IPv6 Internet of Things compliant, enabling each node with a unique Internet-ready IP address

