

# Earthquake Motion Detector

## [EMD-1202®]



### FEATURES

- 1-axis sensing and detecting peak
- Reliable and secured data communication
- Can be set to desired threshold levels for alarms/event notification.
- Peak Frequency and Velocity data to wireless client reliably.
- Compact, easy mountable package 120 mm × 65 mm × 40 mm
- Comes with IP65 enclosures
- Low power: 150 mA (typical)
- Rechargeable power-supply: 4.2 V Li-ION batteries with Excellent shock survival and temperature stability
- Inbuilt filtering and FFT processing

### APPLICATIONS

- Sensitive, low power, peak detection applications
- Building monitoring
- Structural health monitoring
- Critical infrastructure monitoring

### General Description

The EMD-1202® is a compact, rigid, low power, uni-axial accelerometer peak detector.

The EMD-1202® is cable-free and compact real-time vibration detection model that can scale to tens of units. As EMD-1202® connects to your local Wi-Fi network it increases the flexibility of mounting the device anywhere in that range.

### Operation

EMD-1202® contains a complete tri-axial acceleration measurement system and radio relay system inside the waterproof plastic case. To turn it on/off, just press the power button. The advantage of this system is that the least-skilled personnel can deploy the units without using complex keyboard/display devices.

The wireless unit will run from a rechargeable lithium-polymer battery. Depleted batteries can be replaced in the field. The status of the batteries is monitored continuously from the Central recording system, If radio connectivity is partially lost, the RF transmission circuitry immediately allows stranded wireless units to switch to operate autonomously, buffering data into local flash memory. When radio connectivity is restored, buffered data are wirelessly transmitted to the central recorder.

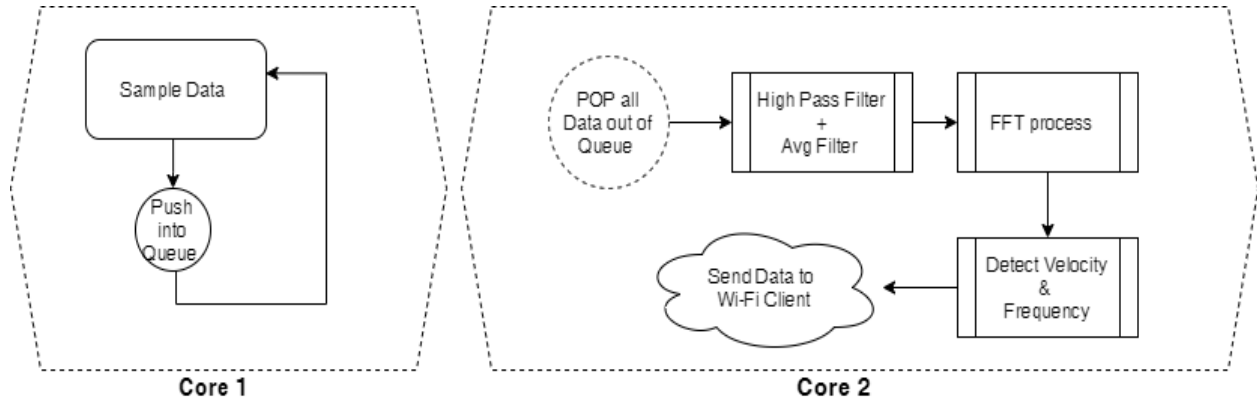
### N/W Arrangement



### Technical Specification

Parameters	Details	Description
<b>General Details</b>		
Sensor Type	Tri- Axial MEMS	
Channels	1	z – Axis
Connectors	1	For Charging and Debugging [Factory Use]
Switch	1	Power On/Off
Mounting	Screw Mount	3mm Diameter
<b>Accelerometer Details</b>		
Measurement Range	±2g	±2g [Typical]
Cross-Axis Sensitivity	±1	%
Noise Density Z-OUT	7.7	mm/sec/VHr
Resolution	24 Bits	Delta-sigma ( $\Delta\Sigma$ )
<b>Sampling</b>		
Sampling Mode	Contineous	
Sampling Rate	1160 SPS	
Sampling Rate Stability	±5 ppm	
Network Capacity	20 Nodes	Based on individual data rate
<b>Operating Parameters</b>		
Wireless Communication Range	Outdoor/line-of-sight: 0.5 km (ideal)* 200 m (typical)** Indoor/obstructions: 20 m (typical)**	
Radio Frequency Transceiver Carrier	802.11 b/g/n	Wi-Fi
Power Source	3.7 VDC / 2000mAh Internal Lithium Polymer [Rechargeable] 3.2 VDC to 9 VDC External Supply	
Power Consumption	Based on Transmission Speed and Sampling	
Operating Temperature Range	-20 °C to +60 °C	Higher Range is optional
<b>Physical Specifications</b>		
Dimensions	120 mm × 65 mm × 40 mm	Length x Breath x Height
Environmental Rating	IP65/ IP66 Enclosures	Indoor Use
Enclosure material	ABS Plastic	
Mounting	3mm Holes	At the bottom of the device

## Process Diagram



The above block diagram clearly describes the process that is happening internally inside the microcontroller.

## Boot up Procedure

TMN is designed in such a way that the end user can easily configure it once and rest is taken care by the internal algorithms. The flow chart to the right shows a detailed and clear description of how to set up the device initially.

