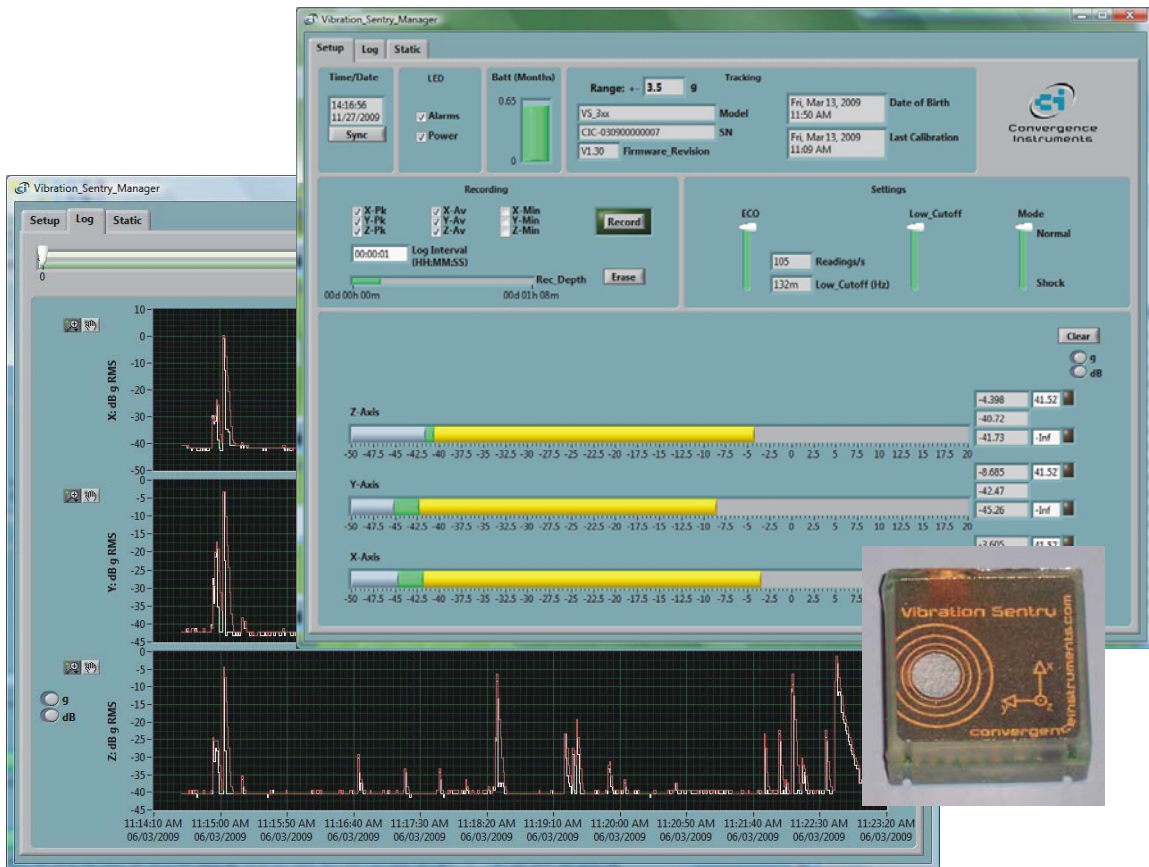


# Vibration Sentry

## Data Sheet



November 27 2009  
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## 1 Product Description

The *Vibration Sentry* is a high-performance integrating Vibration Level Meter and data logger. It includes a 3-axis MEMS accelerometer, an accurate date/time clock and a non-volatile 24000-point recording memory. Depending on the settings it can record vibration levels for months. Its very small size allows it to be attached to or embedded within the monitored equipment.

The *Vibration Sentry* includes the following features:

- All-digital design
- The *Vibration Sentry* is self-calibrated using the earth's gravity as a reference.
- Measures and records max, average and min levels over adjustable time intervals.
- An alarm function activates when the level is outside of a prescribed range.
- Adjustable operating mode and power consumption.
- Can monitor and record vibration levels for years on a small coin battery.
- Non-volatile memory. In case of battery failure, all recorded data is preserved.
- *Vibration\_Sentry\_Manager* application to setup operating and recording parameters, download, visualize and export the recorded data. The application can also be used to monitor vibration levels in real time.

## 2 Applications

- Long-term measurement and recording of vibration levels.
- Detection, measurement and data-logging of impacts and shocks.
- Monitoring of operation and transport conditions of fragile equipment.
- Continuous monitoring of machinery wear.

## 3 Specifications

<b>Number of axes</b>	3
<b>Acceleration Range (VS_303)</b>	+3 g
<b>Acceleration Range (VS_316)</b>	+16g
<b>Dimensions</b>	33mm x 33 mm x 15.5mm (1.3 in x 1.3 in x 0.6 in)
<b>Weight</b>	24 g (0.8 oz)
<b>Construction</b>	Weather-proof sealed construction
<b>Measurements</b>	Max Vibration Level (linear or dB, g or m/s <sup>2</sup> ) Min Vibration Level (linear or dB, g or m/s <sup>2</sup> ) <ul style="list-style-type: none"><li>• Average Vibration Level (<i>LEQ</i>) (linear or dB, g or m/s<sup>2</sup>)</li></ul>
<b>Alarms</b>	Min Vibration Level Max Vibration Level
<b>Calibration</b>	Self-Calibrated using the earth's gravity as a reference
<b>Battery life</b>	Up to 2 Years while recording
<b>Battery type</b>	CR2450 lithium battery
<b>Operating temperature range</b>	-20 degC to 70 degC (-4 degF to 158 degF)
<b>Storage temperature range</b>	-30 degC to 80 degC (-22 degF to 176 degF)

<b>Noise Floor (VS_303)</b>	X and Y axes: -43 dB g RMS (7 mg RMS) Z-axis: -40 dB g RMS (10 mg RMS)
<b>Noise Floor (VS_316)</b>	X and Y axes: -31 dB g RMS (28 mg RMS) Z-axis: -31 dB g RMS (28 mg RMS)
<b>Saturation Level (VS_303)</b>	+10 dB g RMS (3 g RMS)
<b>Saturation Level (VS_316)</b>	+24 dB g RMS (16 g RMS)
<b>Vibration Level Resolution (VS_303)</b>	X and Y axes: -43 dB g RMS (7 mg RMS) Z-axis: -40 dB g RMS (10 mg RMS) While recording: 1dB (12% of reading)
<b>Vibration Level Resolution (VS_316)</b>	X and Y axes: -31 dB g RMS (28 mg RMS) Z-axis: -31 dB g RMS (28 mg RMS) While recording: 1dB (12% of reading)
<b>Calibration Precision (VS_303)</b>	10mg
<b>Calibration Precision (VS_316)</b>	50mg
<b>Acceleration Sensor Type</b>	MEMS 3-axes
<b>Frequency Range</b>	X and Y axes: 1 kHz (-3dB) Z-axis: 600 Hz (-3dB)
<b>Linearity</b>	1dB
<b>Low-Frequency Cut-off</b>	Adjustable 1.2mHz to 100Hz
<b>Reading Length</b>	6ms
<b>Average Measurement Frequency</b>	Adjustable 1 reading/s to 105 readings/s
<b>Recording interval</b>	Adjustable 1s to 12H, with 1s resolution
<b>Recording memory type</b>	Non-Volatile
<b>Recording/erasure cycles</b>	More than 10 000
<b>Recording memory Depth</b>	24 000 individual measurement points

3.1 Frequency Response  
3.1.1 Medium and High Frequency Responses

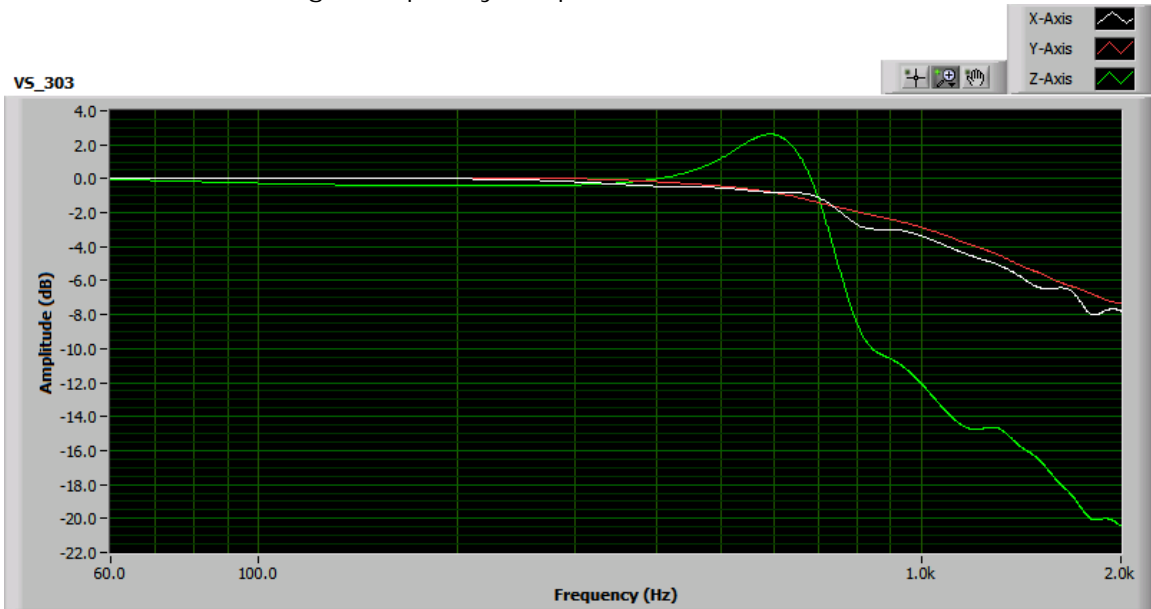


Figure 1: Medium and High Frequency Responses

3.1.2 Low Frequency Responses

The low-frequency responses are limited by digital processing. They are adjustable as a function of the *Low-Cut* and *ECO* controls. The following figure shows all the possible adjustments at the fastest readings frequency (*ECO* = 7, i.e. 105 readings/s).

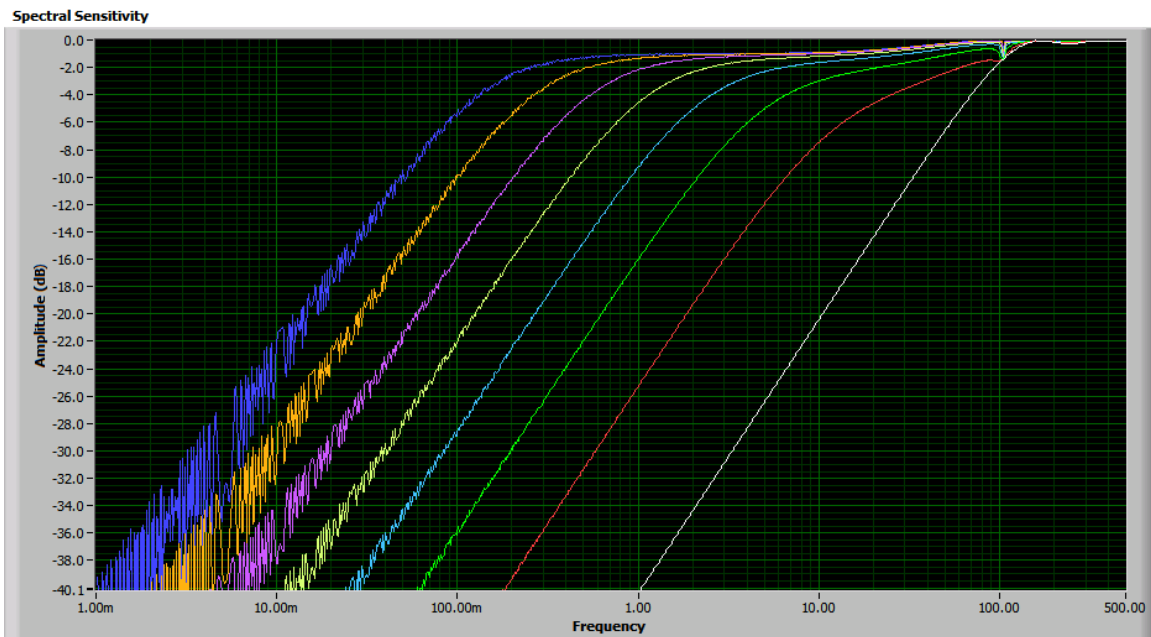


Figure 2: Low Frequency Responses

#### 4 Specifications of *Vibration\_Sentry\_Manager* Software

- Windows XP and Windows Vista compatible
- Real-time display of measurements.
- Complete instrument configuration, including date/time, alarms, values recorded and recording rate.
- Collect and displays data while recording.
- Auto-scale, zoom and pan on all graphs
- Export recorded data to Excel format.