Real Time Acceleration Plotter [RTAP-335®]

SENPRONICS

FEATURES

- 3-axis sensing and plotting
- Compact, easy mountable package 124 mm × 72 mm × 40 mm
- Comes with IP65/66 enclosures
- Low power: 150 µA (typical)
- Rechargeable power-supply: 4.2 V Li-ION batteries with Excellent shock survival and temperature stability
- Comes with data filter on all 3 Axis

APPLICATIONS

- Sensitive, low power, motion sensing applications
- Continuous industrial motor data monitoring
- Remote condition monitoring
- Design for harsh environments
- Cost effective monitoring for large plants
- Reliable and secured data communication

General Description

The RTAD-335® is a compact, rigid, low power, complete 3-axis accelerometer signal data plotter. The product measures acceleration with a minimum full-scale range of ±3 *g*. It can measure the static acceleration of gravity in tilt-sensing applications, as well as dynamic acceleration resulting from motion, shock, or vibration.

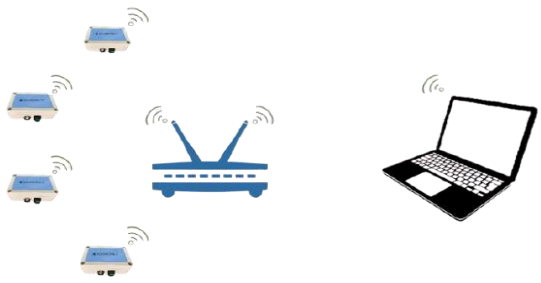
The RTAD-335® is cable-free and compact real-time vibration data acquisition model that can scale to tens of units. As RTAD335 connects to you local Wi-Fi network it increases the flexibility of mounting the device anywhere in that range.

Operation

RTAD-335® 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 operating autonomously, buffering data into local flash memory. When radio connectivity is restored, buffered data are wirelessly transmitted to the Central recorder.

N/W Arrangement



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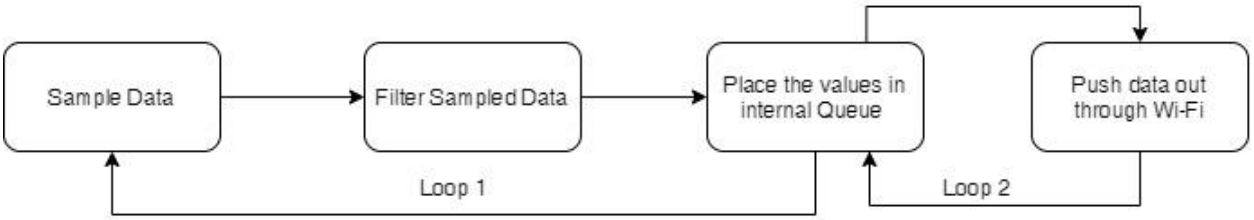
Technical Specification

Parameters	Details	Description
General Details		
Sensor Type	Tri- Axial MEMS	
Channels	3 + 1	X,y,z – Axis
Connectors	1	For Charging and Debugging [Factory Use]
Switch	1	Power On/Off
Mounting	Screw Mount	0.3mm Diameters
Accelerometer Details		
Measurement Range	±3g	±3g [Typical]
Cross-Axis Sensitivity	±1	%
Noise Density XOUT, YOUT	150	µg/√Hz rms
Noise Density ZOUT	300	µg/√Hz rms
Accuracy	±2 (at 25 ℃)	Typical
Resolution	12 Bits	SAR ADC
Sampling		
Sampling Mode	Synchronized, Low Duty Cycle	
Sampling Rate	1 Sample/ Hour to 1000 Hz	
Sampling Rate Stability	±5 ppm	
Network Capacity	100 Nodes	Based on individual data rate
Operating Parameters		
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 ℃ to +60 ℃	Higher Range is optional
Physical Specifications		
Dimensions	124 mm × 72 mm × 40 mm	Length x Breath x Height
Environmental Rating	IP65/ IP66 Enclosures	Indoor Use
Enclosure material	ABS Plastic	
Mounting	0.3mm Holes	Along the adjacent sides

Process Diagram



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

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