Broadsens

PRESENTATION

PRODUCT

SVT-A series wireless accelerometers (vibration sensors) are ultra-low power with advanced features. It includes SVT200-A, SVT300-A and SVT400-A. The sensors are compact, light-weight, easy to install and use with F_{Max} up to 10kHz. They can monitor machine condition in real time or by schedules, which is ideal for predictive maintenance. The sample rates are adjustable from 2Hz up to 25.6kHz. Multiple SVT-A series sensors can be divided into different groups for multi-area monitoring.

Attention: Requires to be used with Broadsens's wireless gateways (sold separately)

Wireless vibration & temperature sensor SVT400-A

Parameters	SVT200-A	SVT300-A	SVT400-A
Acceleration range	±2g, ±4g, ±8g	±2g, ±4g, ±8g, ±16g	±8g, ±16g, ±32g, ±64g
Selectable sampling rates	2Hz, 4Hz, 7Hz, 13Hz, 25Hz, 50Hz, 100Hz, 200Hz, 400Hz, 800Hz, 1.6kHz, 3.2kHz, 6.4kHz, 12.8kHz, 25.6kHz user adjustable		
Resolution	16 bits digital		
Non-linearity	<0.6% of full scale		
Noise	0.7mg RMS; 130ug/ √Hz density		1.9mg RMS; 300ug/ √Hz density
Sampling modes	Real time, batch, single DAQ, multi DAQ, single FFT, live FFT, trigger. All modes can be synchronized among sensors in the same group		
-3dB bandwidth	x,y axis: 0 to 3.2kHz; z axis: 0 to 1.8 kHz	x,y axis: 0 to 3.7 kHz; z axis: 0 to 3.2kHz	x,y axis: 0 to 7.2kHz; z axis: 0 to 6kHz
Sensitivity Variation over temperature (%/ºC)	0.01		
Temperature measurement range	-40 - 85 ^{0}C (-40 – 185 ^{0}F)		
Temperature accuracy	-25 to 85^{0}C：±0.3 ^{0}C；-40 to -25^{0}C：±0.4 ^{0}C; No calibration required		
Temperature measurement interval	Every 5s in real time mode, or at the end of single DAQ mode		
Power consumption	Idle: 2.2uA; real-time sampling & transmission at 50Hz <180uA		
Power supply	14250 replaceable battery, 1200mAh capacity. Can last up to 5 years (depending on the frequency of usage and environment)		
Wireless protocol	2.4GHz proprietary		
Wireless certificates	FCC, IC, CE(EU), TELEC, KCC, NCC, WPC, RCM		
Wireless distance	Up to 300m (900 ft) in open space, line of sight		
Size	Diameter: 34mm (1.34 inch); height:31mm (1.22 inch)		
Metal base material & total weight	Anodized aluminum alloy 6061: 53 g (1.87oz) with battery		
Installation	Epoxy; pad mount (M6); stud mount (M8 to M6); magnet mount		
Environment	Working temperature: -40 - 85 ^{0}C; storage: -55 - 85 ^{0}C; water resistance: IP68 (IP69K optional); Explosive: Ex ia IIC T4 Ga		

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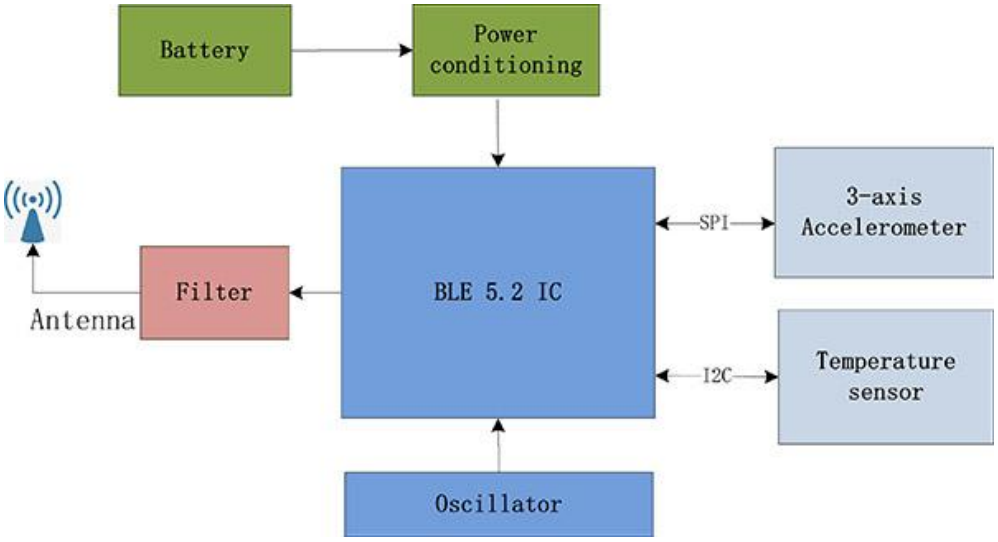
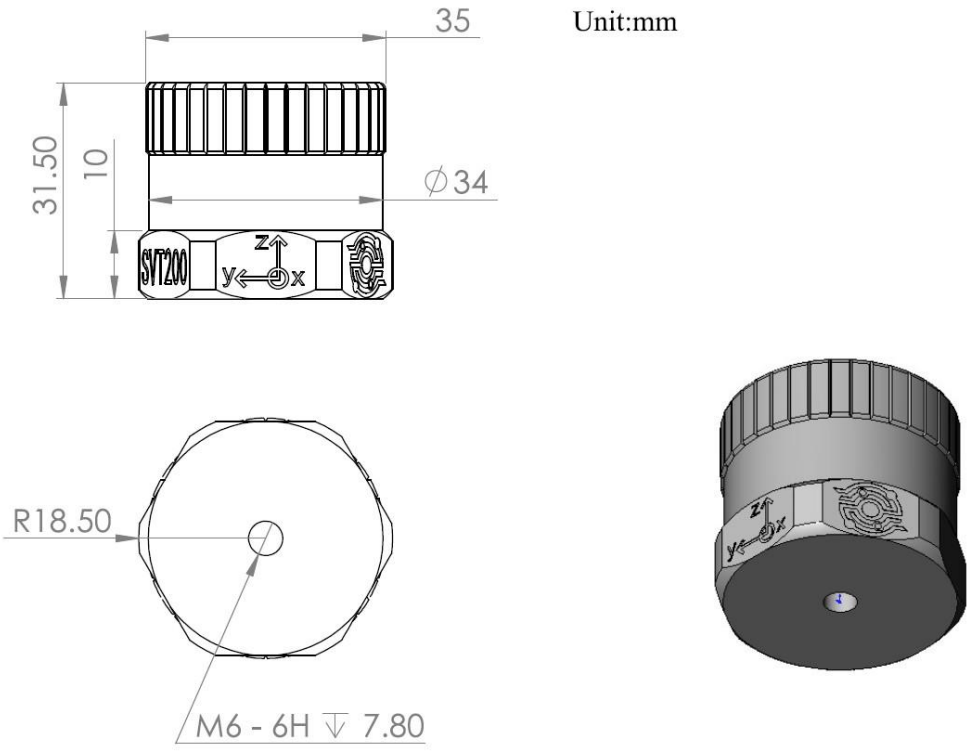
Block diagram



Mechanical drawing



Advantages of SVT-A series sensors

Thanks to the innovative low-power design, SVT-A series sensors can work for up to 5 years before the battery replacing the battery (depending on the frequency of usage and environment). The sensors are easy to install and configure. They can work under harsh environment with IP68 rating. The sensors support secure data transfer and OTA (Over the Air) firmware upgrade.

The sensors have multiple DAQ modes: real time, batch, single DAQ, multi DAQ, single FFT, live FFT and trigger. All DAQ modes support synchronized starting time.

. Real-time mode: sensor takes data and transmits data continuously in real time.

. Batch mode: sensor takes a fixed amount of data and transmits data repeatedly.

. Single DAQ: sensor takes a fixed amount of data at the given sample rate and transmits to the gateway for one time only. The sampling rate is guaranteed, and this is ideal for frequency domain analysis.

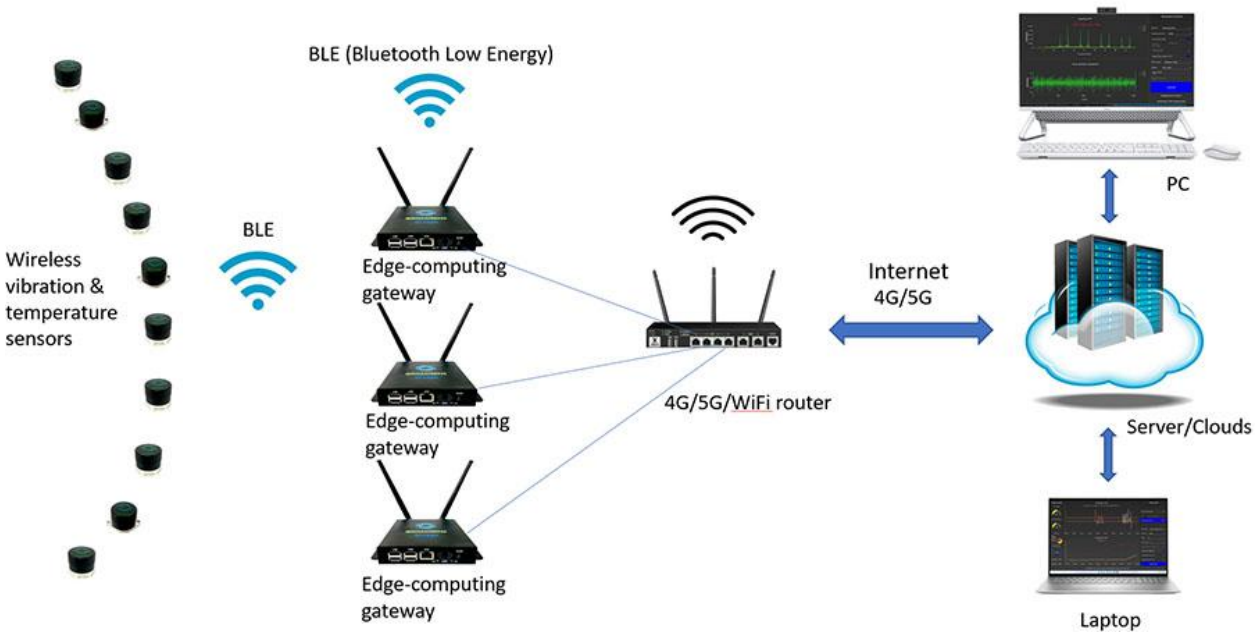
. Multi DAQ: Continuous run of single DAQ mode. Great for frequency domain analysis with no time limit.

. FFT/live FFT: sensor takes data and the gateway performs FFT analysis of the data, either one-time or continuously non-stop.

. Trigger: sensor takes fixed amount of data when the vibration level exceeds user-defined threshold, including pre-trigger data.

The compact size and light weight of the sensors improve the accuracy of vibration monitoring.

Application Diagram

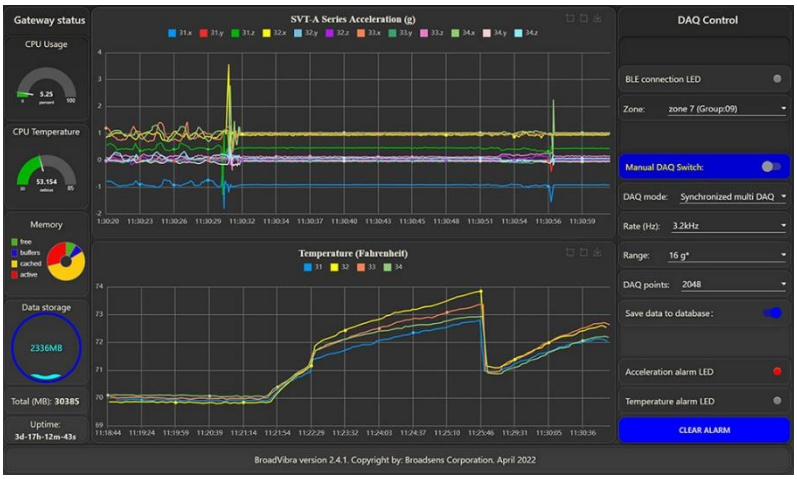


Note:

- Broadsens edge-computing gateway is required to use the sensors
- Vibration analysis software is provided with the gateway with life-time license
- Router and internet are optional to operate the system

Monitoring Software

BroadVibra Vibration monitoring software at the gateway is based on open-source architecture. It can be accessed with all major web browsers. Database is also included



Software advantages

. Real-time monitoring
. Intuitive data visualization
. Alarm & threshold setup
. Scheduled data acquisition
. Time-series database
. Key parameters trend charts
. FFT analysis
. Advanced filtering
. OTA firmware upgrade
. Open source
. Secure transmission

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