SVT-S Series Vibration Sensors

The SVT-S series vibration sensors are industrial-grade sensors designed specifically for equipment condition monitoring and fault diagnosis applications. These sensors are characterized by low noise, high accuracy, edge computing, and rugged durability, making them suitable for long-term use in various harsh industrial environments.

The sensors employ high-performance accelerometer sensors to measure the vibration signals of the equipment. SVT210S utilizes a triaxial MEMS sensor, while SVT220S offers the option of a single-axis or triaxial configuration. The single-axis configuration employs a high-performance piezoelectric sensor, while the triaxial configuration uses a high-performance piezoelectric sensor for the main axis (Z-axis) and MEMS sensors for the secondary axes (X-axis and Y-axis).

With an industrial-grade structural design, the sensors can accurately collect temperature and vibration signals from the measured equipment. Additionally, the sensors have powerful edge computing capabilities. By analyzing these signals, they calculate various feature data for detecting various mechanical anomalies and faults, including unbalance, looseness, bearing pitting and wear, gearbox faults, and gear faults in rotating equipment.
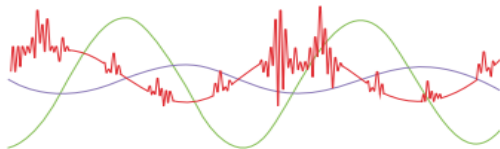
The sensor is equipped with an RS485 interface, capable of transmitting the feature data and waveform data through the Modbus protocol. Users can remotely monitor the vibration and temperature parameters of the equipment, promptly detect any abnormal operating conditions, ensure the safe operation of the equipment, and avoid unplanned downtime, thus reducing maintenance time and costs.
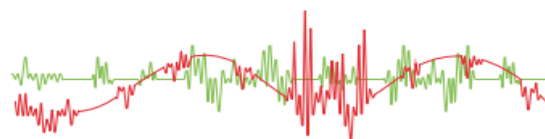
Features and Advantages

Accurate	⇨	Low noise, high-performance sensing, high frequency response.
Easy-to-install	⇨	Stud, adhesive, or magnetic mounting.
Edge computing	⇨	Outputs various vibration feature data for state monitoring and fault diagnosis.
Stable	⇨	Capable of transmitting both feature data and waveform data.
Ruggedized	⇨	Waterproof, dustproof, shockproof, corrosion-resistant, and intrinsically safe; suitable for harsh industrial environment.
Flexible	⇨	The measurement range, sampling frequency, sampling points, and sampling period can be configured according to specific requirements.
Accessible	⇨	Remotely accessible anytime, anywhere; automatic alarm; maintenance free.
Convenient	⇨	Bluetooth compatible and connected via mobile APP.

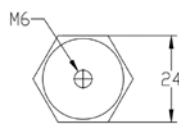

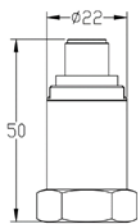—— Acceleration —— Velocity —— Displacement
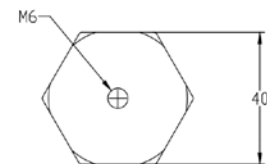
—— Full-band Acceleration —— High-band Acceleration
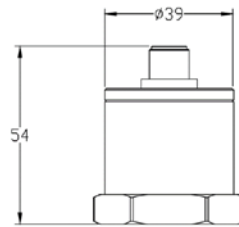
SVT-S Series Vibration Sensors

Specifications

Product Model	SVT210S	SVT220S1	SVT220S3
Accelerometer Type	Triaxial MEMS	Single-axis piezoelectric	Z: Piezoelectric; X/Y: MEMS
Acceleration Resolution	16 bits	24 bits	Z: 24 bits; X/Y: 16 bits
Acceleration Range	±16g	±50g or ±100g	Z: ±50g or ±100g; X/Y: ±16g
Acceleration Sensitivity	0.5mg/LSB	Frontend 40mV/g, 0.006mg/LSB	Z: Frontend 40mV/g, 0.006mg/LSB X/Y: 0.5mg/LSB
Acceleration Frequency Response	Z: 0Hz-6kHz X/Y: 0Hz-5kHz	2Hz-10kHz	Z: 2Hz-10kHz X/Y: 0Hz-5kHz
Temperature Drift	1%/°C	±10% (-40~125°C)	Z: ±10% (-40~125°C); X/Y: 1%/°C
Nonlinearity	2%	1%	Z: 1%; X/Y: 2%
Noise	75µg/√Hz	4µg/√Hz	Z: 4µg/√Hz; X/Y: 75µg/√Hz
Acceleration Sampling Frequency	0.417/0.833/1.67/3.33/6.67/ 13.33/26.67ksps	0.4/0.8/1.6/3.2/6.4/12.8/25.6/ 51.2/64ksps	Z: 0.4/0.8/1.6/3.2/6.4/12.8/25.6/51.2/64ksps X/Y: 0.417/0.833/1.67/3.33/6.67/13.33/26.67ksps
Feature Data Sampling Number	1k/2k/4k		
Velocity Frequency Range	10Hz-1kHz		
Displacement Frequency Range	10Hz-1kHz (Low: 10Hz-200Hz; High: 200Hz-1kHz)		
Envelope Acceleration	Sampling rates of 25.6/26.67/51.2/64ksps: 500Hz-10kHz (SKF ENV3) Other sampling rates: 500Hz high-pass filter		
Acceleration FFT	2048 lines (optional)		
Vibration Feature Data	Frequency, peak acceleration, acceleration RMS, velocity RMS, peak-to-peak displacement, envelope acceleration		
Temperature Range	-40~125°C		
Temperature Precision	±1°C		
Data Acquisition Period	Minimum 1 second; configurable		
Waveform Data Acquisition Time	4096 samples	10~20000ms	
Data Storage	-	64MB	
Communication	Modbus protocol; RS485 interface		
Wireless	Bluetooth 5.0		
Power	12-24VDC SVT210/SVT220: 4000mAh Li/SOCL2; SVT510/SVT520: 19000mAh Li/SOCL2		
Dimensions	See the diagram below		
Weight	85g	230g	
Operating Temperature	-40~85°C		
Operating Humidity	10%~90% RH		
Enclosure	Stainless steel		
Explosion Protection	EX ia IIC T4 Ga		
Ingress Protection	IP67		
Mounting	Stud, adhesive, or magnetic mounting		

SVT210S

SVT220S