

SVT Series Wireless Vibration Sensors

The SVT series wireless 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, ultra-low power consumption, and rugged durability, making them suitable for long-term use in various harsh industrial environments.

The sensors employ high-performance triaxial accelerometer sensors to measure the vibration signals of the equipment. Specifically, the SVT210 and SVT510 utilize triaxial MEMS sensors, while the SVT220 and SVT520 employ high-performance piezoelectric sensors for the main axis (Z-axis), and MEMS sensors for the auxiliary 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 24-dimensional feature data for detecting various mechanical anomalies and faults, including unbalance, looseness, bearing pitting and wear, gearbox faults, and gear faults in rotating equipment.

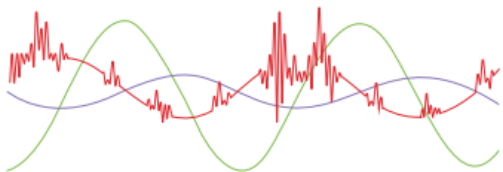
The feature data and waveform data of the sensors are transmitted to a remote monitoring platform through a wireless sensor network. Users can remotely monitor the vibration and temperature parameters of the equipment, promptly detect abnormal operating conditions, ensure safe equipment operation, prevent unplanned downtime, and reduce maintenance time and costs.



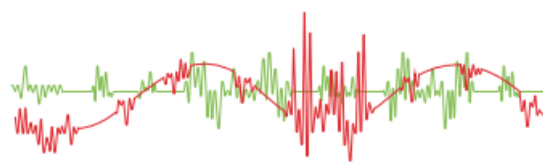
Features and Advantages

- Accurate ⇒ Low noise, high-performance sensing, high frequency response.
- Easy-to-install ⇒ Cable-less; stud, adhesive, or magnetic mounting.
- Wireless ⇒ 2.4GHz wireless sensor network; capable of transmitting both feature data and waveform data.
- Low-powered ⇒ Built-in battery with 2-10 years of life for normal usage.
- 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

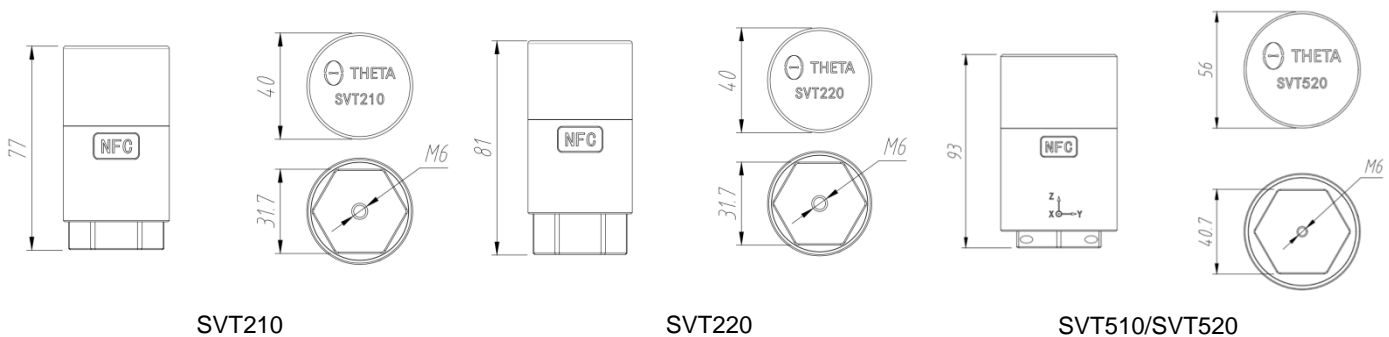


— Full-band Acceleration — High-band Acceleration



Specifications

| Product Model | SVT210/SVT510 | SVT220/SVT520 |
|-------------------------------------|---|---|
| Accelerometer Type | MEMS | Z: Piezoelectric; X/Y: MEMS |
| Acceleration Resolution | 16 bits | Z: 24 bits; X/Y: 16 bits |
| Acceleration Range | ±16g | Z: ±50g or ±100g; X/Y: ±16g |
| Acceleration Sensitivity | 0.5mg/LSB | Z: Frontend 40mV/g, 0.006mg/LSB X/Y: 0.5mg/LSB |
| Acceleration Frequency Response | Z: 0Hz-6kHz (±3dB), 10Hz-2kHz (±5%) X/Y: 0Hz-5kHz (±3dB) | Z: 2Hz-10kHz (±3dB), 10Hz-9kHz (±10%) X/Y: 0Hz-5kHz (±3dB) |
| Resonant Frequency | - | Z: >50kHz |
| Temperature Drift | 1%/°C | Z: ±10% (-40~125°C); X/Y: 1%/°C |
| Nonlinearity | 2% | Z: ±1%; X/Y: 2% |
| Noise | 75µg/√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 | 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 | |
| 24-dimension Vibration Feature Data | Frequency, peak acceleration, acceleration RMS, velocity RMS, peak-to-peak displacement, envelope acceleration, skewness, skewness index, variance, margin factor, crest factor, kurtosis, kurtosis index, pulse factor, fundamental frequency amplitude, 2 nd harmonic amplitude, 3 rd harmonic amplitude, half harmonic amplitude, spectral variance, spectral mean, spectral RMS, inclination angle, pitch angle, roll angle | |
| Temperature Range | -40~125°C | |
| Temperature Precision | ±1°C | |
| Data Acquisition Period | 1/2/5/10/15/20/30/60/120 minutes | |
| Waveform Data Acquisition Time | 10-20000ms | |
| Data Storage | 64MB | |
| Communication | 2.4GHz Wireless Sensor Network (Bluetooth 5.0), line-of-sight range 300m; Optional NB (SVT510/SVT520) | |
| Battery | SVT210/SVT220: 4000mAh Li/SOCL2; SVT510/SVT520: 19000mAh Li/SOCL2 | |
| Dimensions | SVT210/SVT220: See the diagram below; SVT510/SVT520: 52mm x 90mm (D x H) | |
| Weight | SVT210: 185g; SVT220: 212g; SVT510/SVT520: 395g | |
| Operating Temperature | -40~85°C | |
| Operating Humidity | 10%~90% RH | |
| Enclosure | Stainless steel and polycarbonate | |
| Explosion Protection | EX ia IIC T4 Ga | |
| Ingress Protection | IP67 | |
| Mounting | Stud, adhesive, or magnetic mounting | |



SVT210

SVT220

SVT510/SVT520