SVT Series Wireless Vibration Temperature Sensor

The SVT series wireless vibration and temperature sensors are industrial-grade sensors designed for equipment status monitoring and fault diagnosis applications. The sensors integrate vibration and temperature acquisition functions, and have the characteristics of low noise, high accuracy, ultra-low power consumption, and ruggedness, making them suitable for long-term use in various harsh industrial environments.

The sensor uses a high-performance three-axis accelerometer to measure the vibration signal of the equipment. The SVT110, SVT210 and SVT510 use a three-axis MEMS sensor, while the SVT220 and SVT520 use a high-performance piezoelectric sensor for the main axis (Z axis) and a MEMS sensor for the secondary axis (X axis and Y axis). The SVT520-Z uses a three-axis piezoelectric sensor.

The sensor adopts an industrial-grade structural design and can collect vibration signals of the equipment under test intactly. At the same time, the sensor has powerful edge computing capabilities and can calculate 24-dimensional characteristic vibration data to detect various mechanical anomalies and faults.

The sensor supports periodic collection or low-power wake-up trigger collection, and sends the collected feature data and waveform data to the remote monitoring platform via wireless transmission. Users can remotely monitor the vibration and temperature parameters of the equipment at any time and detect abnormal operating conditions of the equipment in a timely manner. Through in-depth analysis of waveform data, users can perform fault diagnosis, including but not limited to looseness, imbalance, misalignment, bearing failure, gearfailure, blade failure, etc. of rotating equipment. This real-time monitoring and remote diagnosis capability helps to ensure the safeoperation of the equipment and avoid unplanned downtime due to failures, thereby reducing operation and maintenance time and costs.

Features and Benefits

Precise measurement	Low-noise, industrial-grade structural design enables accurate equipment vibration measurement
Easy installation	No wiring required, the sensor can be easily installed by thread fastening, glue or magnetic suction
Wireless transmission	A variety of wireless communication methods are available, which can stably transmit characteristic data and waveform data.
Ultra-low power consumption	Power consumption is microwatt level, and the built-in battery can work continuously for 2-10 years.
Strong and sturdy	Waterproof, dustproof, shockproof, corrosion-resistant, intrinsically safe and explosion-proof, suitable for harsh industrial environments
Flexible configuration	You can set the range, sampling frequency, number of acquisition points, sampling interval and other parameters as needed.
Remote monitoring	Data can be obtained anytime and anywhere, automatic alarm can be realized, and no maintenance is required for a long time.
Mobile phone direct connection	Supports Bluetooth 5.0 technology and can directly connect to the mobile phone APP for device inspection.

Product Matrix

Frequency response (Z/XY)	BLE	Enhanced BLE	LoRa / LoRaWAN	4G Cat.1
2k/1k	SVT210-K**	SVT510-KP**	SVT210-KL**	SVT510-KC**
6k/5k	SVT210	SVT510-P	SVT510-L*	SVT510-C
15k/1k	-	SVT520-KP	SVT520-KL*	SVT520-KC
15k/5k	SVT220	SVT520-P	SVT520-L*	SVT520-C
15k/15k	SVT520-Z	SVT520-ZP	-	SVT520-ZC
Visually communication distance	300 m	600 m	2000 m	No restrictions

* Supports waveform data once a day

** Waveform data is not supported

SVT Series

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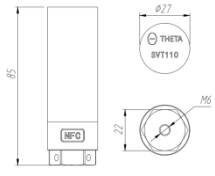
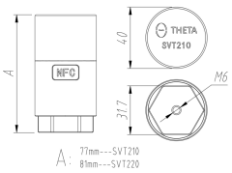
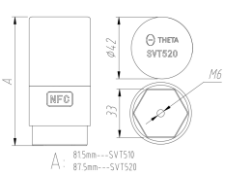
Product number	SVT110	SVT210-K SVT210-KL	SVT510-KP SVT510-KC	SVT210	SVT510-P SVT510-C SVT510-L	SVT220	SVT520-P SVT520-C SVT520-L	SVT520-KP SVT520-KC SVT520-KL	SVT520-Z SVT520-ZP SVT520-ZC
Accelerometer Type	MEMS					Z: Piezoelectric; X/Y: MEMS			3-axis piezoelectric
Acceleration sampling resolution	16 bit					Z: 24 bits; X/Y: 16 bits			24 bits
Acceleration range	±16g					Z: ±50g or ±100g; X/Y: ±16g			±50g or ±100g
Speed range (@80Hz)	200mm/s					Z: 600mm/s; X/Y: 200mm/s			600mm/s
Acceleration sensitivity	0.5mg/LSB					Z: 0.006mg/LSB; X/Y: 0.5mg/LSB			0.006mg/LSB
Acceleration frequency response Z	0Hz-2kHz(±10%)			10Hz-2kHz(±5%) 0Hz-6kHz(±3dB)		10Hz-10kHz(±10%) 2Hz-15kHz(±3dB)			10Hz-10kHz(±10%) 2Hz-15kHz(±3dB)
Acceleration frequency response XY	0Hz-1kHz			0Hz-5kHz		0Hz-5kHz		0Hz-1kHz	
Resonant frequency	-					Z:>50kHz			> 35kHz
Temperature drift	1%/℃					Z: 10% (-40～125℃); X/Y: 1%/℃			10% (-40～125℃)
Nonlinear	2%					Z: ±1%; X/Y: 2%			±1%
Noise	75μg/√Hz					Z: 4μg/√Hz; X/Y: 75μg/√Hz			8μg/√Hz
Acceleration sampling frequency Z	0.2-12.5ksps			0.417-26.67ksps		0.4-64ksps			0.4-64ksps
Acceleration sampling frequency XY						0.417-26.67ksps		0.2-12.5ksps	
Number of feature data sampling points	1k/2k/4k; configurable								
Speed RMS frequency range	10Hz-1kHz								
Displacement peak-to-peak frequency range	10Hz-1kHz (Low frequency: 10Hz-200Hz; High frequency: 200Hz-1kHz)								
Acceleration envelope	Sampling rate 25.6/26.67/51.2/64ksps: 500Hz-10kHz (SKF ENV3); other sampling rates: 500Hz high pass filter								
Acceleration FFT	2048 lines; output reference frequency and amplitude of 1/2/3/1 times frequency								
24-dimensional vibration characteristic data	Frequency, acceleration peak, acceleration RMS, velocity RMS, displacement peak-to-peak, acceleration envelope, skewness, skewness index, margin factor, crest factor, kurtosis,kurtosis index, pulse factor, single frequency amplitude, double frequency amplitude, triple frequency amplitude, half frequency amplitude, variance, spectrum variance,spectrum mean, spectrum RMS, tilt angle, roll angle, pitch angle								
Temperature measurement range	- 40～125℃								
Temperature measurement accuracy	±1℃								
Data collection interval	Low power vibration wake-up trigger, or regular 1, 2, 5, 10, 15, 20, 30, 60, 120 minutes; configurable								
Waveform data sampling time	not support	10-20000ms							
Data storage space	-	64MB							
Wireless communication	SVT110/SVT210/SVT210-K/SVT220/SVT510/SVT520/SVT520-Z: Bluetooth 5.0, line-of-sight communication distance 300 meters SVT510-P/SVT510-KP/SVT520-P/SVT520-KP/SVT520-ZP: Bluetooth 5.0, line-of-sight communication distance 600 meters SVT510-C/SVT510-KC/SVT520-C/SVT520-KC/SVT520-ZC: 4G Cat1 SVT210-KL/SVT510-L/SVT520-L/SVT520-KL: LoRa/LoRaWAN, visual communication distance 2000 meters								
Battery	SVT110: 2700mAh, replaceable; SVT210/SVT220 series: 4000mAh, replaceable; SVT510/SVT520 series: 6500mAh, replaceable								
size	See below								
weight	SVT110: 110g; SVT210 series: 185g; SVT220 series: 212g; SVT510 series: 211g; SVT520 series: 247g								
Operating temperature	- 40～85℃								
Working humidity	10%～90% RH								
Housing Material	Stainless steel, weather-resistant engineering plastics								
Explosion-proof grade	EX ia IIC T4 Ga								
Protection level	IP67								
Installation	M6 thread fastening, adhesive, magnetic suction (optional)								



SVT110



SVT210/ SVT220



SVT510/SVT520