

# SMART VIBRATION SENSOR



**Soft dB**  
Sound and Vibration Experts

# RUGGED & VERSATILE VIBRATION METER

## THE MARKET'S FINEST

Measure strong motion whether it's caused by induced seismicity, construction or transportation sectors with Soft dB's SVS smart triaxial vibration sensor: your best MEMS sensor for monitoring high levels of vibration and strong motion.



## STRONG MOTION & GREAT PRECISION

### *Only the Best*

With MEMS technology, Soft dB's SVS smart vibration sensor is the perfect option when measuring a high level of seismicity (strong-motion) at low frequency without any risks of saturation. It is efficiently designed to be insensitive to shift and tilt motion.

## AUTOMATED SENSOR CHECK

### *Stop Worrying About the Quality of Your Data*

Our sensor is intelligent. It automatically makes sure it's functioning optimally. The built-in intelligence ensures high-quality and interference-free data.

## WIDE RANGE MEASUREMENTS

### *Frequency Range Adjustable to Your Needs*

The SVS operates within a frequency range of 0.5 Hz to 1 kHz, offering independent adjustment for both velocity and acceleration. It provides RMS and peak values as well as 1/3-octave bands. The sensor outputs a continuous time signal and supports spectral analysis.

## SIMPLIFIED LAB CALIBRATIONS

### *Easy Maintenance*

Our signal acquisition and processing system is integrated directly into the SVS vibration sensor. Therefore, only the geophone needs to be sent when calibration and certification is required. Everything is automated to ensure continuity and quality of measured information.



# LONG-TERM VIBRATION MONITORING AND SHORT-TERM MEASUREMENTS

## One Vibration Sensor for Both Short-Term and Permanent Environmental Use

The SVS is a universal sensor designed for both short-term measurements and long-term environmental vibration monitoring. Simply connect your SVS via a USB port into a computer or a tablet for short-term vibration measurements, or straight into any Soft dB monitoring station for long-term monitoring.

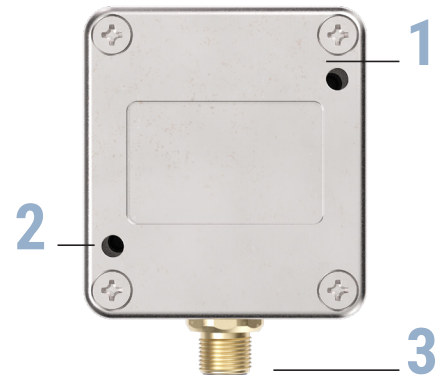


# MECHANICAL HIGHLIGHTS

## BUILT FOR LONG-TERM VIBRATION MONITORING

The SVS is strategically designed to allow for easy and fast onsite deployment, deliver high-quality data, and withstand harsh environmental conditions.

- 1 Fully enclosed environmental protection case
- 2 Simplified mounting with 2 through holes
- 3 M12 connector for digital signal transmission (up to 100 meters of cable)



# THE SVS

## SMART VIBRATION SENSOR IS A PRECISE, RUGGED AND VERSATILE EMBEDDED VIBRATION METER



### *Easy Field Deployment*

- No installation or inclination constraints
- Can be easily buried, installed in the ground, fixed to a foundation, or immersed in water
- No interference: signal acquisition and processing system integrated directly into the sensor
- Compatible with all Soft dB monitoring stations
- Digital communication avoiding interferences
- Up to 100 meters of cable

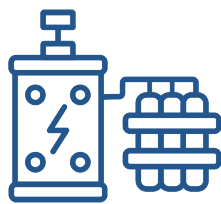
### *Designed for Extreme Conditions*

- Resistant to extreme weather conditions
- IP68 protection rating
- Operating temperature from -40 °C to 50 °C
- Ideal sensor for remote, long-term monitoring with limited access

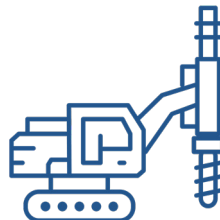
### *A Vast Array of Applications*



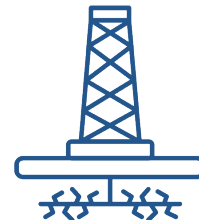
Seismicity



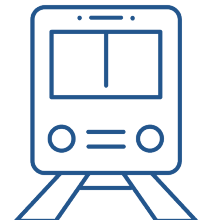
Blasting



Drilling



Hydraulic Fracturing



Transport

# TECHNICAL SHEET

## COMPONENTS

PRODUCT CODE	
SVS0-00004	SVS Smart Vibration Sensor, LN (Low-Noise)
SVS0-00006	SVS Smart Vibration Sensor, HR (High-Range)
RECOMMENDED ACCESSORIES	
PCAB-00006	M12 Cable, 4-Conductor, Female-Male, 10 m (can be daisy-chained up to 100 m)
PCAB-00112	USB-to-RS485 Adapter
SVS0-00003	Mounting plate for SVS (57 mm x 64 mm x 19 mm) (mounting hardware included)
QUIN-00008	3 spikes 3/8-16 (SVS0-00003 Mounting plate required)
CERT-00005	Calibration Certificate for SVS

## SPECIFICATIONS

VIBRATION METER	
Standards	ISEE (2022), DIN 45669-1 (2010), ISO 8041 (2005)
Certificate	Embedded Calibration Certificate in Non-Volatile Memory
Sensor Technology	Triaxial MEMS Accelerometer
Sampling Frequency	2.756 kHz
Axis	X (Trans.), Y (Long.), Z (Vert.), Vector-Sum
Measured Metrics	User-defined Bandwidth Acceleration (RMS, Pk, Time-Signal) User-defined Bandwidth Velocity (RMS, Pk, Time-Signal) ISO 8041 Wm Weighted Acceleration (RMS, Pk) DIN 45669 KBFT Weighted Velocity (0.125 s Expo. RMS) Earth Gravitational Field (Avg.)
Metrics Interval	93 ms
Metrics Buffer Length	10 s
USER-DEFINED BAND LIMITING FILTERS	
Signal Routing	Separate filters for Acceleration and Velocity, does not affect Standard ISO Wm and DIN KBFT
High-Pass Filter Frequencies (Hz)	0.5, 0.63, 0.8, 1.0, 1.25, 1.6, 2.0, 2.5, 3.125, 4.0, 5.0
Low-Pass Filter Frequencies (Hz)	100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000
SELF-TEST	
Method	Electromechanical force injected on sensor
Results	Pass/Fail based on factory calibrated values in sensor memory
COMMUNICATION	
Protocol	RS-485 Half-Duplex, 3 Mbps
Connector	M12, 4-Conductor, Female-Male, 10 m
ENVIRONMENTAL	
Operating Temperature	-40 °C to 50 °C
Storage Temperature	-50 °C to 70 °C
Complies to	IP68, NEMA, 4X,6,6P,12,13
POWER	
Power	0.45 W
Operating Voltage	5 V

# TECHNICAL SHEET

## SPECIFICATIONS

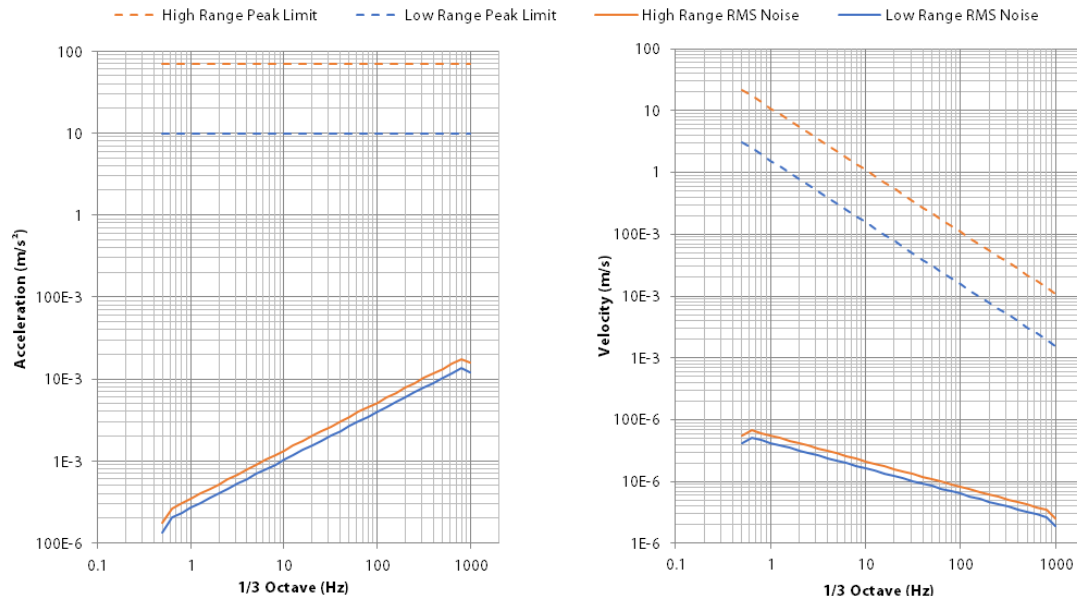
PHYSICAL	
Height	35 mm (1 3/8")
Width	57 mm (2 1/4")
Depth (without connector)	64 mm (2 1/2")
Depth (with connector)	78 mm (3 1/16")
Weight	175 g (6.2 oz)
Density	1370 kg/m <sup>3</sup> (85.5 lbs/ft <sup>3</sup> )
Mounting	2x 4.5 mm Through Holes (Accepts M4 or 8-32 machine screws)

## SPECIFICATIONS – MODEL LN (LOW NOISE)

	Low Range (± 2 g)			High Range (± 8 g)		
	X, Y	Z	V Sum	X, Y	Z	V Sum
Peak Maximum Acceleration (m/s <sup>2</sup> )	± 19.6	± 9.81**	± 9.81**	± 78.4	± 68.6**	± 68.6**
Wide-band (0.5 Hz - 1 kHz) Acc. Peak Noise (m/s <sup>2</sup> )	24.0 m	34.0 m	48.0 m	30.0 m	40.0 m	58.0 m
Wide-band (0.5 Hz - 1 kHz) Acc. RMS Noise (m/s <sup>2</sup> )	6.00 m	8.50 m	12.0 m	7.50 m	10.0 m	14.5 m
Wide-band (0.5 Hz - 1 kHz) Vel. Peak Noise (m/s)	220 u	400 u	500 u	400 u	440 u	720 u
Wide-band (0.5 Hz - 1 kHz) Vel. RMS Noise (m/s)	55.0 u	100 u	125 u	100 u	110 u	180 u
ISEE (1.6 Hz - 315 Hz) Vel. Peak Noise (m/s)	120 u	240 u	300 u	200 u	260 u	380 u
ISEE (1.6 Hz - 315 Hz) Vel. RMS Noise (m/s)	30.0 u	60.0 u	75.0 u	50.0 u	65.0 u	95.0 u
DIN (0.8 Hz - 100 Hz) Vel. Peak Noise (m/s)	160 u	340 u	400 u	280 u	400 u	560 u
DIN (0.8 Hz - 100 Hz) Vel. RMS Noise (m/s)	40.0 u	85.0 u	100 u	70.0 u	100 u	140 u
ISO Wm (0.8 Hz - 100 Hz) Acc. Peak Noise (m/s <sup>2</sup> )	2.20 m	3.60 m	4.80 m	2.90 m	4.00 m	5.80 m
ISO Wm (0.8 Hz - 100 Hz) Acc. RMS Noise (m/s <sup>2</sup> )	550 u	900 u	1.20 m	730 u	1.00 m	1.45 m
DIN KBFT (0.8 Hz - 100 Hz) Vel. RMS Noise (m/s)	30.0 u	60.0 u	75.0 u	45.0 u	65.0 u	90.0 u

\* Values in the above table are minimum specifications. Typical peak maximum acceleration is higher and typical vibration noise levels are lower.

\*\* Dynamic range limited by Earth's gravitational field on the vertical axis.



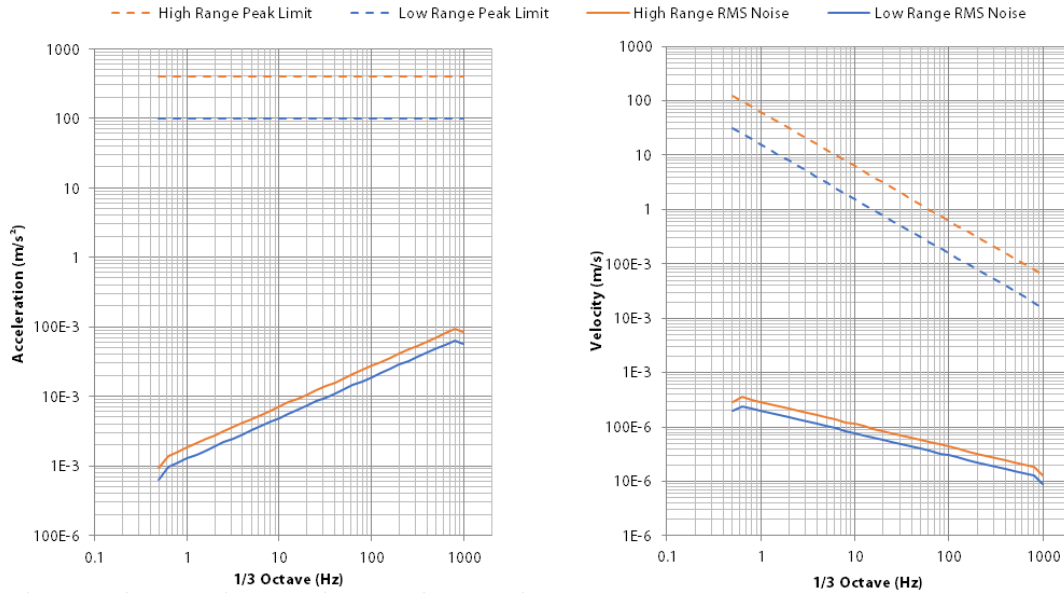
# TECHNICAL SHEET

## SPECIFICATIONS – MODEL HR (HIGH RANGE)

DYNAMIC\*

	Low Range ( $\pm 10$ g)			High Range ( $\pm 40$ g)		
	X, Y	Z	V Sum	X, Y	Z	V Sum
Peak Maximum Acceleration ( $m/s^2$ )	$\pm 98.1$	$\pm 88.3^{**}$	$\pm 88.3^{**}$	$\pm 392$	$\pm 383^{**}$	$\pm 383^{**}$
Wide-band (0.5 Hz - 1 kHz) Acc. Peak Noise ( $m/s^2$ )	140 m		240 m	180 m		310 m
Wide-band (0.5 Hz - 1 kHz) Acc. RMS Noise ( $m/s^2$ )	35.0 m		60.0 m	45.0 m		78.0 m
Wide-band (0.5 Hz - 1 kHz) Vel. Peak Noise (m/s)	1.20 m		2.10 m	1.80 m		3.10 m
Wide-band (0.5 Hz - 1 kHz) Vel. RMS Noise (m/s)	300 u		520 u	450 u		780 u
ISEE (1.6 Hz - 315 Hz) Vel. Peak Noise (m/s)	600 u		1.00 m	1.00 m		1.75 m
ISEE (1.6 Hz - 315 Hz) Vel. RMS Noise (m/s)	150 u		260 u	250 u		440 u
DIN (0.8 Hz - 100 Hz) Vel. Peak Noise (m/s)	1.00 m		1.70 m	1.20 m		2.10 m
DIN (0.8 Hz - 100 Hz) Vel. RMS Noise (m/s)	250 u		430 u	300 u		520 u
ISO Wm (0.8 Hz - 100 Hz) Acc. Peak Noise ( $m/s^2$ )	12.0 m		21.0 m	16.0 m		28.0 m
ISO Wm (0.8 Hz - 100 Hz) Acc. RMS Noise ( $m/s^2$ )	3.00 m		5.20 m	4.00 m		7.00 m
DIN KBFT (0.8 Hz - 100 Hz) Vel. RMS Noise (m/s)	180 u		310 u	230 u		400 u

\* Values in the above table are minimum specifications. Typical peak maximum acceleration is higher and typical vibration noise levels are lower.  
 \*\* Dynamic range limited by Earth's gravitational field on the vertical axis.





**30** years

of setting the standard  
in acoustics & vibration

**Soft dB**