



*The SV3X is our third version in 15 years, continuing our quest to advance maintenance.*

As others continue to offer 1990's technology at higher prices, we relentlessly pursue innovative advancements at a great price.

Our four-channel SV3X costs less than most 1 or 2 channel systems and provides 3x faster data collection.

The SV3X has allowed us to pioneer low cost remote vibration analysis programs over 30 years ago.

Out of the box, the SV3X has all the tools you need to build a successful and money-saving Predictive Maintenance Program.

This SV3X enhances our remote vibration analysis service by providing everyone the opportunity for a Fortune 100 vibration monitoring program on a small business budget.

***Unmatched Value!*** The latest SV3X revolutionizes predictive maintenance, yet again, with auto-ranging on four (4) simultaneous channels for unparalleled precision and the fastest data collection at the most reasonable price.

Our unequaled century of predictive maintenance experience has been poured into the latest SV3X for unparalleled advancements. The SV3X's efficiency gets you ahead of your maintenance problems for a stress free and low-cost existence.

The SV3X is a full tablet PC so, unlike other data collectors, everything you do in your office, you can do in the field.

- Create routes on the fly, analyze data and generate reports.
- Engage the internet and initiate impromptu net meetings to resolve your machinery problems.
- VSC's experts can always provide remote data analysis and diagnostics no matter where you are for the answers you need, exactly when you need them.

**VIBRATION ANALYSIS** - Unrivaled accuracy provides detailed FFT, waveform, trending, envelope, and process or 4-20 mA data for fast and accurate machinery frequency analysis and diagnostics.

**ROUTE COLLECTION** - Simple, user friendly interface that collects data 3x faster than any 1 or 2 channel system. Can create & collect a route at the same time.

**EVENT MONITORING** - Captures elusive vibration problems for detailed analysis to identify and repair these annoying problems for good.

**REMOTE MONITORING** - Remotely control or receive our expert analysis on the SV3X from anywhere around the globe through a computer or smartphone.

**ROLLER BEARING ENVELOPE ANALYSIS** - Bearings are the weakest link in the chain, so know when they require lubrication, repair or replacement.

**REMOTE VIBRATION ANALYSIS** - VSCs vibration and machinery experts analyze your data detailing machinery faults, severity and recommended actions.

**DYNAMIC ROTOR BALANCING** - Smooth operating machinery is the hallmark of any good maintenance program and provides huge savings in reducing repairs.

Contact us about the SV3X: (877) 698-0800 or [vsc@vib.com](mailto:vsc@vib.com)  
Or see us on the web at [www.vib.com](http://www.vib.com)

# SV3X SPECIFICATIONS \*

## Input

**Number of Channels** <sup>(a)</sup> – 8, simultaneous.

**Coupling** – AC 0.5 Hz to 40 kHz Fmax or DC. Along with ICP<sup>(f)</sup> and 4-20 interfacing capability can interface to virtually any vibration probe and most industrial parameter transducers.

**Auto-Switching** – All channels feature independent control including Enable, ICP, 4-20 interfacing, coupling, range/gain, hardware integration, AA filtering. Software controlled for ease of use and ultra-low power consumption.

**Auto-continuity check** – detects shorts or opens in transducer cabling.

**Accelerometer power** <sup>(b)</sup> – constant 3.6 mA at 24V.

**Sensitivity** <sup>(b)</sup> – 100mV to 30V Full Scale in 9 steps; visual overload indicators. Measures to less than 1µV with oversampling.

**Auto-scaling** <sup>(b)</sup> – hardware based to 3 dB (variable) margin above maximum peak in any channel. Channel independent.

**Dynamic range** – Collective dynamic range > 130 dB utilizing all voltage ranges; typ. < -90 dB for each range to < 1 µV at lowest range (100mV) with oversampling; 16-bit A/D (-96 dB) on each channel with oversampling for increased effective bits.

**Integration/Differentiation** <sup>(b)</sup> – single hardware integrator with intrinsic 2<sup>nd</sup> order HP filter (g's → ips, 5 to 5kHz Fmax with digital compensation <2.5Hz) or single/double digital integration/differentiation (acc.→vel, acc→disp) up to 40kHz Fmax.

**Sampling rate** – 100kHz [Fmax = 40kHz] for chs 1-4 [max cumulative sampling rate 400kHz]. 50kHz [Fmax = 20kHz] for chs. 1-8. All sampling rates are continuous or gap-free. Ordered sampling available.

**Frequency range** – Fmax from 20 to 40 kHz up to 4 channels, 20 to 20kHz up to 8 channels.

**Auto-anti-aliasing filters** – Auto-engaged multiple feedback, modified Butterworth, 6<sup>th</sup> order, .5 dB for 5kHz, 8<sup>th</sup> order Chebyshev, 1 dB for 20kHz & 40kHz combined with digital resampling and >8<sup>th</sup> order digital FIR low-pass filtering support a multitude of standardized Fmax's 20Hz through 40kHz. Unused hardware filters are automatically powered down for maximum power efficiency. Filter placement before main gain stage ensures undesirable high frequency noise is filtered for maximum dynamic range.

**Protective out-of-band filter** – Up front 40kHz single-pole prior to AA filter.

**Indicator LEDs** – A series of light-pipe directed LEDs provide active channel (green) and ICP (red) status. Two status LEDs indicate various DAQ operations or conditions.

**Phase ref. trigger** – Full triggering capability includes buffering using Schmitt Trigger, edge control (+/-), functional from practically DC (< 1 cpm) to Fmax (100Kcpm+). Accepts any voltage level from mV to 30V-. The buffered or raw trigger signal may also be routed to either channels 4 or 8 via software control providing the ability to view the tach signal for debug, diagnostic and/or analytical purposes.

**Multiplexer/ViB Bus** – Proprietary ViB Bus connector for interfacing to optional field-portable 32-channel MUX expandable up to 128 channels (32 channels per card). In addition, other option cards for calibration and phase testing may be interfaced.

## Signal Processing

**Real Time** – Real Time display capability of up to 8 channels with fast refresh rate (8 ch, 1K pts or more @ 10hz typical) and gap-free data up to 40KHz (Fmax) for 4 ch or 20KHz for 8 channels.

**Data Streaming** – Gap-free storage capability of up to 8 channels simultaneously with full playback (includes fast forward, slow motion, rewind and so on) and analysis (resampling, filtering, spectrum, phase, averaging [peak, sum, exponential]) capability. Can store terabytes<sup>(c)</sup> of data representing days, weeks, months or even years of continuous data.

**Spectrum** – real time spectrum processing includes amplitude & phase (complex), power, PSD, inverse transform...with 10 standard block sizes from 256 points (100-line) through 128k (51,200 lines). Displays with high refresh rates & large overlap capability ensure graphs of large FFT sizes as well as very low-frequency plots show meaningful data very quickly.

**Weighting** – 11 standard weightings include *Hanning, Hamming, Flattop, Force, Exponential*...

**Averaging** – Includes summation, peak, exponential in either fixed or continuous modes<sup>(d)</sup> up to 2<sup>32</sup> avgs.

**Filtering** – In addition to hardware filtering, software filtering includes adjustable High Pass, Low Pass, Notch or Band Pass.

**Digital Triggering** – Trigger signal is used to derive 1x phase, rpm from almost DC to Fmax (see Input). Triggering is processed digitally which adds flexibility<sup>(e)</sup> and prevents lockup (when hardware is waiting for a trigger pulse).

## Physical

**Weight** – < 4.5 lbs. typical (w. tablet computer & extended battery)

**Size** – 12.25" x 8.25" x 3.25" typical w. cover.

**Tablet** – typical rugged, touchscreen, w. Color 1920 x 1200 (WUXGA), 10.1" diag., LED backlight, Windows 10, CPU i5 (5<sup>th</sup> Gen) 5300U/2.3 GHz, Dual-Core, 64-bit, 3MB cache, 8G RAM, 128 G SSD, camera front HD 720p video, rear: 5MP with autofocus...

**Battery** – Lithium Ion with power management

**Input** – Keyboard and mouse available

**Temperature** – -20° to 55°C as per IEC 60068-2

**Humidity** – 93%RH @40°C, 12 hrs (non-condensing) as per IEC 60068-2-78

**Calibration** – NIST<sup>(f)</sup> traceable calibration for both amplitude and DC offset correction loads automatically based on each DAQ card's unique firmware ID.<sup>(g)</sup>

**Power** – DAQ card only: 5v DC, 300 mA, 8 channels, maximum sampling (ICP not included). With typical ICP load on all channels, < 500 mA. Typical operation w. extended battery > 8 hrs.

**Certifications** – CE as per EMC Directive 2004-108-EC to conformity standard 61326-1: 2006, Class A. *Fixed Frequency* as per MIL-STD-810G, 514.6, Category 24. *Functional Shock* as per MIL-STD-810G, 516.6, Procedure I. *Transit Drop* as per MIL-STD-810G, 516.6, Procedure IV. *Thermal* test as per IEC 60068-2-1, 2 & 78.

## Software

The SV3X<sup>(f)</sup> system comes standard with the following Windows<sup>(f)</sup> compatible software. All of these products contain extensive help systems with demos & tutorials:

**WinProtect**<sup>(f)</sup> – this flagship software product which has won user acclaim for its uncluttered, icon-rich presentation, numerous wizards, extreme flexibility and robust feature set, represents numerous man years of development, field testing & user feedback.

**Real-Time** – Provides powerful real-time waveform and spectrum processing capability with full storage abilities, default & user-defined panel setups, extensive off-route or rapid-route creation, numerous annotations including 1x rpm harmonics, 5 highest peaks with order identification, line-frequencies, bearing frequencies, level-specific peaks, peak table, log scales, full unit conversions including Hz, cpm, orders, PSD to name but a view.

**Route Collection** – Navigate quickly & easily to any point on the route tree & then let the software do the rest. Automatically checks for probe/data faults, uses the appropriate predefined measurement point specific panel setting (including ICP control, hardware integration, unit conversion, averaging, multiple frequency ranges, envelope demodulation, data length, etc...). Everything you need for streamlined multi-axis data collection with full presentation, editing and analysis capability including database support. Full reporting capability with Import/Export.

**Software Options** – **WinBalance**, a robust balancing application guides the user through a multitude of balancing processes makes even the most advanced balancing techniques easy. **Event Monitor** provides for the continuous recording of data based on a sophisticated array of user-defined events (high spectral peak, alarm band, etc...) and records data both before & after the event. Leave the unit for days, weeks, months, etc... and be notified automatically if an event should occur. As with all of the SV3X software, remote access capable.

- 3-axis vibration measurements are specified by ANSI S217 and SO 2373-1974
- utilizes channel independent control.
- limited only by the storage medium size
- Fixed* refers to a set number of averages, *N*. For *Continuous*, *N* continually updates.
- for example, any trigger amplitude level can be readily set (in addition to the standard +/- edge triggering) and additional logic conditions imposed. Also, a data block does not have to start at the trigger point to derive phase.
- SV3X, WinProtect, WinBalance, and WinEnvelope are trademarks of Vibration Specialty Corporation. WINDOWS is a registered trademark of Microsoft Corporation. ICP is a registered trademark of PCB Piezotronics. NIST is the National Institute of Standards and Technology.
- A yearly calibration at our facility is recommended.

**\* Specifications subject to change without notice**

100 GEIGER ROAD PHILADELPHIA, PA 19115-1090  
PHONE (215) 698-0800 FAX (215) 677-8874  
[www.vib.com](http://www.vib.com) [vsc@vib.com](mailto:vsc@vib.com)