

SV100A & SV103

Human Vibration Dosimeters



INSTRUMENTATION FOR SOUND & VIBRATION MEASUREMENTS

SV100A Whole-Body Vibration Dosimeter

ISO 2631-1 and EU Directive 2002/44/EC



The SV100A measures the A(8) vibration exposure and the overall vibration total value (VECTOR) in accordance with ISO 2631-1 and EU Directive 2002/44/EC. The A(8) result is given in: m/s^2 (RMS), $\text{m/s}^{1.75}$ (VDV) and points. The SV100A monitors the time left to limits and activates the alarm when the limits are reached.

The force sensors in the SV100A automatically detect the presence of a user or vehicle driver which enables real daily exposure calculations for the period of time when the user is in contact with the vibrating surface.

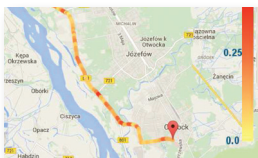
Remote control over Bluetooth® *



The SV100A Bluetooth® interface enables current results to be previewed on a smartphone or tablet using our Assistant application. The smartphone application also signals an alarm when the set vibration limits are exceeded.



GPS tracking*



The ISO 2631-1 standard implies that it is desirable for the measurement report to include information about any changes in conditions over time. The SV100A enables correlation of GPS data with the vibration data and plots them on a map, where the colour indicates vibration magnitudes. This simple solution gives a powerful tool for projecting the A(8) vibration exposure with respect to the vehicle speed and road conditions.

Reporting with Supervisor software

[illegible]

Measurements downloaded into the Supervisor database are assigned either to a particular user or to a task while all calculations are performed automatically. The measurements are recorded in m/s^2 and are directly comparable to the limits laid down by European Directive 2002/44/EC.

It is also possible to convert these units into points, which are widely used within the health & safety sector. By clicking on Mode, you can switch to calculations based on VDV which is often necessary when the vibration is characterized as impulsive.

ISO 8041 in-situ check*



In-situ checks require usage of the SV111 vibration calibrator and are intended for check of the instrument's basic calibration and functionality in the field. During the check procedure the SV100A is mounted on the shaker which produces vibration level of 1 m/s^2 at 16 Hz. Any improper object fixing is automatically detected and indicated by LEDs on the calibrator's panel giving the information about direction which should be corrected.

*Function requires optional software or hardware accessories. For more information contact Svantek distributor or check ordering information on svantek.com website.

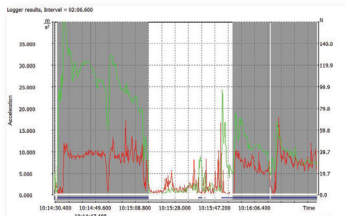
SV103 Hand-Arm Vibration Dosimeter

ISO 5349-2 and EU Directive 2002/44/EC



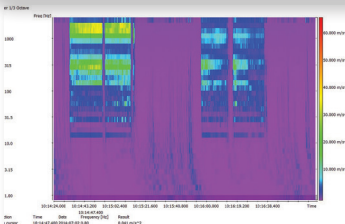
The SV103 measures the A(8) vibration exposure in accordance with the ISO 5349-2 and European 2002/44/EC both in m/s^2 and points. The instrument significantly decreases the measurement uncertainty related to the estimation of daily exposure time as it is small enough to take daily vibration exposure measurements without interfering with normal working activities. The SV103 uses the SV107 moulded hand-held adaptor with the tri-axial MEMS accelerometer and contact force sensors. The MEMS technology means the SV107 is extremely robust, shock resistant, uses very low power and is free of the DC-shift effect that adversely affects systems based on piezoelectric accelerometers.

Contact force detection



ISO 5349-2 mentions that contact force measurement should be used to detect when the worker's hands first make contact with the vibrating surface and also when contact is broken. With the development of the SV103, it became possible to automatically obtain information about the period that the hand is in contact with the vibrating surface and to evaluate the total contact time per day.

1/3 octave histogram*



ISO 5349-1 implies that it is desirable to report (unweighted) one-third octave band RMS acceleration magnitudes over the frequency range of the measurement system. One feature of mechanical vibrations is the wide frequency spectrum that can be clearly shown on spectrograms. With this powerful solution it is possible to verify if the source of recorded vibration was a machine.

Reporting with Supervisor software

| Hand-Arm vibration exposure (ISO 5349-2) | | | | | | | | | |
|--|-------------------|----------------|----------------|----------------|----------------|---------------------|-------------------------|-------|-----------------------|
| Show exposure: levels | | | | | | | | | |
| User | | | | | | | | | |
| Task | Exposure duration | RMS (X) | RMS (Y) | RMS (Z) | AEQ | Partial exposure | Time to reach EAV | | Time to reach BLV |
| | H:mm | m/s^2 | m/s^2 | m/s^2 | m/s^2 | m/s^2 A(8) | 2.5 m/s^2 A(8) | H:mm | 5 m/s^2 A(8) |
| 1 Drill | 00:00 | 5.389 | 10.012 | 5.499 | 12.618 | 0.364 | 01:00 | 04:02 | |
| File name: DRILL1 (Ch1-3) | | 5.662 | 12.274 | 5.929 | 14.757 | 0.426 | 00:13 | 00:55 | |
| File name: DRILL2 (Ch1-3) | | 5.630 | 9.386 | 5.236 | 12.134 | 0.350 | 00:20 | 01:21 | |
| File name: DRILL3 (Ch1-3) | | 4.831 | 7.852 | 5.272 | 10.617 | 0.307 | 00:26 | 01:46 | |
| Total duration: | 00:00 | | | | | | | | |
| | | | | | | Daily exposure | | | |
| | | | | | | User | | | |
| | | | | | | Zbychu | 0.364 | | |

The Supervisor software automatically calculates A(8) vibration exposure value for the time that the contact force was detected. The tools provided with the SV103 enables the user to project the working time with the vibrating equipment as well as removing artifacts from the A(8) calculation. Reports are done in MS Word™ format and can be generated with a single click.

ISO 8041 in-situ check*



In-situ checks require to use a vibration calibrator such as the SV110 and are intended for checking the instrument's basic calibration and functionality in the field. During the check procedure, the SV107 accelerometer is mounted on the shaker with the SA105A calibration adapter and is excited at vibration level of 10 m/s^2 at 80 Hz. The check procedure lasts 30 s for each axis.

*Function requires optional software or hardware accessories. For more information contact Svantek distributor or check ordering information on svantek.com website.

Technical Specifications



SV100A

| | |
|-----------------------|---|
| Application | Whole-body |
| Standards | ISO 8041:2005, ISO 2631-1:1997 |
| Meter Mode | aw (RMS), awmax (RMS MAX), VDV, MaxVDV, awv (VECTOR), A(8) Daily Exposure, ELV Time (TIME LEFT TO LIMIT), EAV Time (TIME LEFT TO ACTION) |
| Filters | MTVV, Max, Peak, Peak-Peak Wd, Wk, Wm, Wb (ISO 2631) and corresponding Band Limiting filters; Wf for motion sickness filter for measurements according to ISO 2631-1 (option) |
| RMS & RMQ Detectors | Digital true RMS & RMQ detectors with Peak detection, resolution 0.1 dB |
| Measurement Range | 0.01 ms ⁻² RMS ÷ 157 ms ⁻² PEAK |
| Frequency Range | 0.1 Hz ÷ 180 Hz |
| Data Logger | Time-history data including meter mode results and spectra |
| Time-Domain Recording | Simultaneous 3-channel time-domain signal recording (option) |
| Analyser | 1/1 octave real-time analysis (option) 1/3 octave real-time analysis (option) |
| Accelerometer | Built-in tri-axial MEMS based |



SV103

| | |
|-----------------------|--|
| Application | Hand-arm |
| Standards | ISO 8041:2005, ISO 5349-1:2001; ISO 5349-2:2001; |
| Meter Mode | ahw (RMS), ahv (VECTOR), Max, Peak, Peak-Peak A(8) Daily Exposure, ELV Time (TIME LEFT TO LIMIT), EAV Time (TIME LEFT TO ACTION) |
| Filters | W _H (ISO 5349) and corresponding Band Limiting filter |
| RMS & RMQ Detectors | Digital true RMS detector with Peak detection, resolution 0.1 dB |
| Measurement Range | 0.2 ms ⁻² RMS ÷ 2000 ms ⁻² PEAK |
| Frequency Range | 1 Hz ÷ 2000 Hz |
| Data Logger | Time-history data including meter mode results and spectra |
| Time-Domain Recording | Simultaneous 3-channel time-domain signal recording (option) |
| Analyser | 1/1 octave real-time analysis (option) 1/3 octave real-time analysis (option) |
| Accelerometer | detachable SV 107 MEMS based tri-axial accelerometer with hand straps in accordance to ISO 5349 |

General Information

| | | |
|--------------------------|---|---|
| Display | OLED 128 x 32 pixels | colour OLED 128 x 64 pixels |
| Memory | 8 GB | 8 GB |
| Interfaces | USB 2.0 client, Bluetooth | USB 2.0 client |
| Keyboard | 4 push buttons | 4 push buttons |
| Power Supply | Ni-MH rechargeable cells operation time > 24 hours ¹ USB interface 500 mA HUB | Ni-MH rechargeable cells operation time > 24 hours ¹ USB interface 500 mA HUB |
| Environmental Conditions | Temperature from -10 °C to 50 °C Humidity up to 90 % RH, non-condensed | Temperature from -10 °C to 50 °C Humidity up to 90 % RH, non-condensed |
| Dimensions | Ø 235mm x 12 mm | 88 x 49.5 x 19.2 mm (instrument without accelerometer, cable and mounting stripe) |
| Weight | 0.5 kg | 150-160 grams with SV 107 accelerometer and one of vibration contact adapters |

¹dependent on instrument operation configuration

Our Company's policy is based upon continuous product development and innovation. Therefore, we reserve the right to change the specifications without any prior notice whatsoever.

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