

# SV 103

## Hand-Arm Vibration Dosimeter



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**SV 103** measures the A(8) vibration exposure in accordance with the **ISO 5349-2** and **European 2002/44/EC** both in  $\text{m/s}^2$  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 instrument is equipped with **4 PUSH BUTTONS** and an **OLED** display that allows basic configuration in the field.

The **2.0 USB** interface provides fast data download and is used for battery charging.

The SV107 tri-axial **MEMS** accelerometer 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.

The **SV 107 TRI-AXIAL** accelerometer meets requirements of the ISO 5349 and is worn on the palm of the hand so it can be used underneath gloves.

The SV103 is **FULLY CONFIGURABLE** in Supervisor software. Settings such as measurement time, start, stop or pause can be adjusted and saved in the instruments' memory as setup files.

The **TIME HISTORY LOGGING** of results such as RMS, VECTOR, Max, Min, Peak and Force with two simultaneous logging steps is saved in **8 GB** memory.

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 SV 107 vibration sensor, 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**.



## About SV 103

SV 103 Personal Human Vibration Exposure meter is dedicated to hand-arm vibration measurements. The instrument meets ISO 8041:2005 and is the ideal choice for making measurements according to ISO 5349 and European Directive 2002/44/EC. The SV103 significantly decreases the measurement uncertainty as the instrument is attached to the user's arm and is small enough to take daily vibration exposure measurements without interfering with normal working activities.

The SV 103 uses our latest accelerometer, the SV 107, that has a contact force sensor in addition to the standard accelerometer. Contact force is the sum of grip force and push force and is therefore a measurement of how firmly a user is holding the vibrating tool. This is a recommendation of the new standards and the reading from the contact

force sensor is also displayed on the screen. The SV 107 accelerometer is based on MEMS, the very latest in transducers technology. MEMS gives many advantages including shock resistance, very low power consumption and frequency response down to DC. The usage of MEMS breaks the technological barrier of a weight and dimensions additionally reducing the cost of the complete system.

The SV103 is powered using rechargeable batteries charged through the USB interface which also enables easy interconnection between the instrument and a PC.

The measurement data is safely stored in the large 8 GB memory. The instrument works with our powerful Supervisor software which allows instrument configuration as well as viewing and exporting of measurement data and daily vibration exposure recalculations.





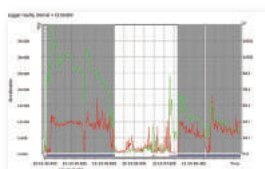
## What's inside the SV 103 kit?

The standard SV 103 kit includes personal vibration meter together with a detachable tri-axial accelerometer SV 107 with set of adapters for a hand mounting. The USB cable for the communication with PC software (license for PC software is included) and the SA 54 charger for recharging the inbuilt battery is provided. Each SV 103 has its factory calibration certificate and 36-months warranty card.

## Supervisor Software



Supervisor software supports data download, instrument configuration and provides complete set of tools for determination of occupational vibration exposure from measurements in accordance to ISO 5349-2 standard. Measurement results are expressed in  $m/s^2$  and can be directly compared to limits given by the European Directive 2002/44/EC. It is also possible to convert units into Points widely used in health & safety sector. All information displayed within the panel window is directly printable to the report.



## 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 SV 103 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.

## Optional functions



ISO standards imply to be desirable to report (unweighted) **ONE-THIRD-OCTAVE BAND** root-mean-square acceleration magnitudes over the frequency range of the measurement system. Frequency analysis such as **1/3 octave** provides information on dominant frequencies and harmonics, which may help engineers to identify effective vibration control measure as well as detection of artifacts. It can be activated at any time, by ordering an activation code.



The SV 103 offers a possibility of recording the raw **TIME DOMAIN SIGNAL** to the WAV format. The raw signal can be used for a detailed vibration analysis in order to improve the vibration characteristics of the hand-held tools. It can be activated at any time, by ordering an activation code.

## Optional accessories to SV 103



SA 105  
Calibration Adapter  
to SV107



SV 110  
Hand-Arm  
Vibration  
Calibrator



SV 111  
Hand-Arm and  
Whole-Body Vibration  
Calibrator



SA 76  
Waterproof  
Carrying Case



SA 47M  
Carrying Bag  
Fabric Material



## SV 103 Technical Specifications

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	Wh (ISO 5349) and corresponding Band Limiting filter (ISO 8041)	
RMS Detectors	Digital true RMS detector with Peak	
Measurement Range	0.2 m/s <sup>2</sup> RMS ÷ 2000 m/s <sup>2</sup> Peak	
Frequency Range	1 Hz ÷ 2000 Hz	
Data Logger <sup>1</sup>	Time-history data including meter mode results and spectra	
Time-Domain Recording <sup>1</sup>	Simultaneous x, y, z time-domain signal recording (optional)	
Analyser <sup>1</sup>	1/1 octave real-time analysis (optional) with center frequencies from 1 Hz to 1 kHz 1/3 octave real-time analysis (optional) from 0.8 Hz to 1.3 kHz	
Accelerometer	Detachable SV 107 MEMS based tri-axial accelerometer with hand straps in accordance to ISO 5349	
Memory	8 GB	
Display	OLED 128 x 64 pixels	
Interfaces	USB 2.0 client	
Power Supply	Ni-MH rechargeable cells	operation time > 24 hours <sup>2</sup>
	USB interface	500 mA HUB
Environmental Conditions	Temperature	from -10 °C to 50 °C
	Humidity	up to 90 % RH, non-condensed
Dimensions	88 x 49.5 x 19.2 mm (instrument without accelerometer, cable and mounting stripes)	
Weight	150-160 grams with SV 107 accelerometer and one of vibration contact adapters	

<sup>1</sup>function parallel to the meter mode

<sup>2</sup>depending on configuration and environmental conditions

The policy of our company is to continually innovate and develop our products. Therefore, we reserve the right to change the specifications without prior notice.

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