

Software for Sound and Vibration Measurement

SAMURAI is the latest software from SINUS Messtechnik GmbH for sound and vibration measurement and real-time analysis with Soundbook, HARMONIE and NoiseLOG. SAMURAI features a user-friendly operating philosophy. For operation on a tablet PC, only a touch pen is necessary.

Because of the parallel usage of computing power from the DSPs and the PC, a variety of functions from 2 to 8 measuring channels in 1 to 16 windows are simultaneously available for the user. SAMURAI offers fantastic graphical display facilities during the measurement and in post-processing. Level values, third octaves and time signals are stored parallel to measurement and analysis. SAMURAI contains many innovative functions:

- Integration of a sensor database for common sensor types
- The multi-analysis function offers different types of pre-defined windows for the simultaneous display of sound level meter, spectra, history, sonogram, waterfall, auxiliary channels etc.
- All properties of the display windows can be adjusted individually.
- All setups can be stored and re-loaded.
- File access is supported by a browser.
- The replay function allows replaying the measured data stored.
- All statistical values can be calculated in broad and narrow bands.
- Measurement tasks can be defined to be performed in Easy Mode. The Easy Mode user can only measure and store, so that operator errors are almost excluded.
- An automatic calibration, run before the start of the measurement, checks if there are typical calibration signals on the channels and then carries out a calibration.
- SAMURAI contains novel trigger and marker functions.
- Third-octave and FFT spectra can be displayed in the same window.
- A window for the display of tonality is available in SAMURAI.
- Spectra are displayed over the time axis or over r.p.m.
- SAMURAI utilizes the "sleep" function of the computer: the software switches the computer on at a defined time to perform a measurement and afterwards automatically switches it off again.

The following measurements, analyses and additional functions can be performed simultaneously. The measurement and the display of measurement results are separate processes, so that not every measured value needs to be displayed during the measurement. Different modes allow various trigger and storage functions for effective usage of the storage capacity:

MODE --> STORAGE

Standard: Final values for a period (no history)

Autostore: All data of the measurement period (complete time history)

Event: Data at a pre-defined event

Block: Data in start / stop operation

Timed: Data at a certain point in time

Demo: No data storage

The following types of display windows are available:

Sound level meter

- Type 1 according to IEC 60561, 60804, 61672
- Level with Fast, Slow, Impulse & Peak time weightings and A, C & Z frequency weightings
- L_{max}, L_{min}, L_{eq}, L_{peak} of all level values
- L_E, L_{Atm1/3/5}, L_n
- One measurement channel per window

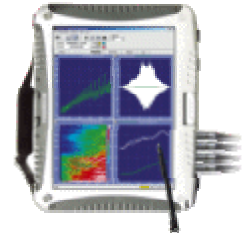
Third-octave analyzer

- Real-time third-octave filter according to IEC 1260 Type 0
- Measurements from 0.1 Hz to 20 kHz
- Momentary, maximum, minimum and L_{eq} spectra simultaneously
- Up to eight channels can be displayed in one window
- Display as bar graph, bar contour or line

Suitable Hardware
>> Selection <<



2...8 channels
HARMONIE®
The universal portable acoustic laboratory
[\[more\]](#)



2...8 channels
Soundbook®
HARMONIE® compatible compact pc system
[\[more\]](#)



NoiseLOG
Long-term monitoring of emissions and immissions
[\[more\]](#)



NoiseLOG mobil
Mobile noise monitoring station
[\[more\]](#)

FFT analyzer

- FFT analyzer with 101 to 25,601 lines
- Frequency range selectable from 0 ... 19.5 Hz up to 0 ... 20 kHz
- Momentary, maximum, minimum and Leq spectra simultaneously
- Up to eight channels can be displayed in one window
- Display as bar graph, bar contour or line

Time signal

- Display of time signals with changeable time basis
- Up to eight channels can be displayed in one window

Sonogram

- Color display of third-octave and FFT spectra over time
- Color display of third-octave and FFT spectra over r.p.m.

Waterfall plot

- 3D display of third-octave or FFT spectra over time
- Geometry settings can be edited

Human vibration analyzer

- Triple-axis measurement displayed in a window as bars and numerical values
- Calculation of local and total-body vibrations
- Comfort and Health measurements
- Calculation of the resulting vector

The **replay mode** of SAMURAI allows measurements to be redisplayed. Data export to the following formats is already integrated:

- Noise & Vibration Works
- si++ Workbench
- MS Excel
- ASCII
- Universal File Format (UFF)

SAMURAI is perfectly complemented by the **Noise & Vibration Works for Windows** software, which offers comprehensive post-processing facilities.

It allows the analysis of level, time and spectra values, graphical post-processing and convenient report generation. SAMURAI is also used for monitoring noise and vibration with NoiseLOG and Swing, whereby it can be controlled either locally or over a network.

The automatic storage of the measured values on exchangeable hard disks is supported. Direct integration of a weather station with a serial interface into SAMURAI is possible using a special display window.