



SenSPL™

Quality Control for Sound Pressure Levels

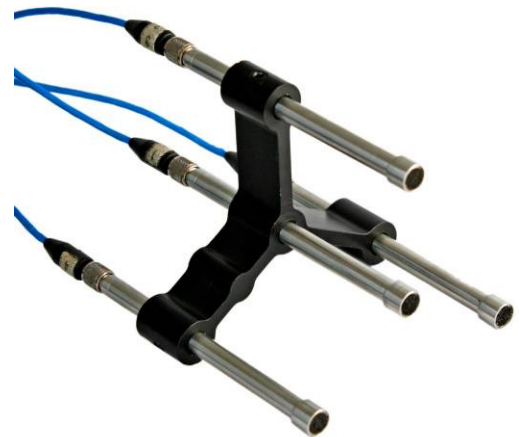
SenSound's SenSPL™ test systems provide accurate sound pressure level measurement (SPL) on the manufacturing line, quickly and without the need for an acoustic enclosure.

We help Companies improve product quality, reduce warranty costs and speed production line throughput by implementing better quality control of product noise levels. We provide custom software and systems for in-line testing which eliminate background noise without the need of an acoustic enclosure. These systems use new and patented acoustic algorithms developed at the Wayne State University Acoustic, Vibration and Noise control Laboratory. Identifying the sound output of a product on manufacturing lines is usually impossible in a noisy manufacturing environment without the use of a costly enclosure. SenSPL eliminates the need for that enclosure, saving money and considerable cycle time in testing. The result is better product quality and improved manufacturing line throughput.

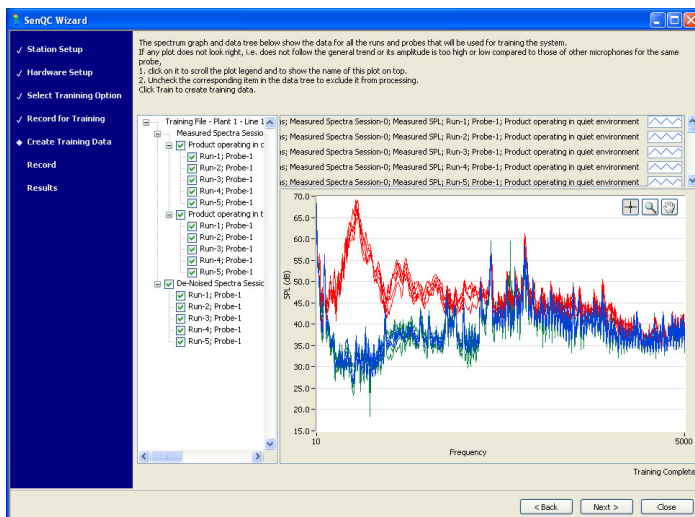
SenSPL "Acoustic Lens"

SenQC de-noises the acoustic signal by using one or more acoustic probes made up of 4 microphones that function as an acoustic lens. The "lens" focuses on the object of interest and can distinguish between the noise coming from the object and ambient noise such as:

- Neighboring machines running
- Tools or parts dropping on table and floor
- HVAC background noise
- People talking nearby, etc.



System Training and De-noising

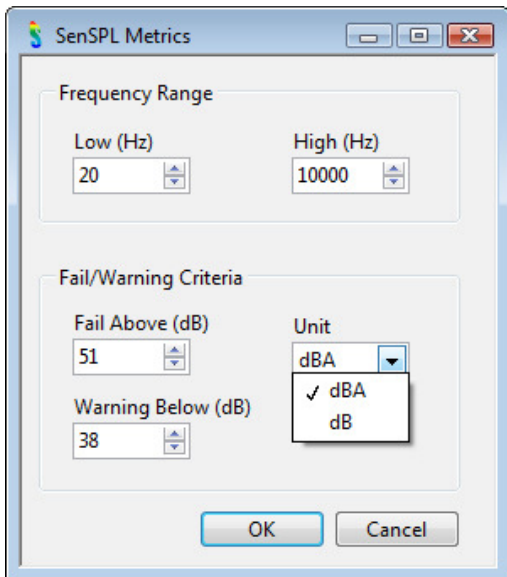


The system is trained to know three things: what a "good" product sounds like, some idea of the average ambient noise, and what defects sound like, if defect detection is desired. SenQC standard software provides software wizard guided training modules for each step of the training process.

SenQC is then able to de-noise the signal in order to provide an accurate representation of the sound output of the object being tested and to enable non-contact defect detection by enabling the identification of specific defect signatures. In a production environment, this testing is automated.

www.SenSound.com

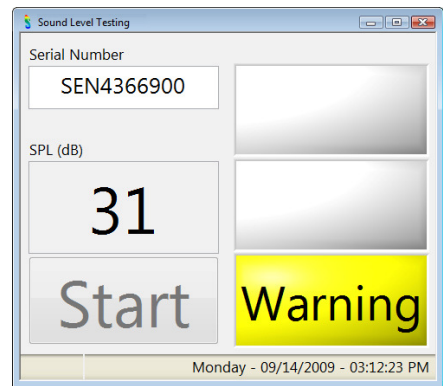
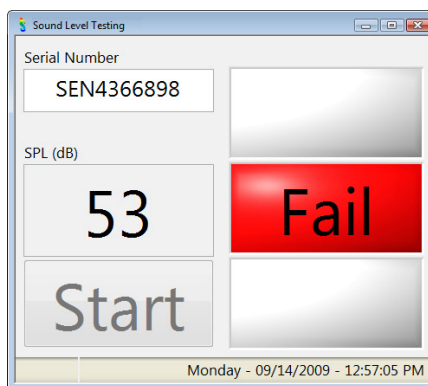
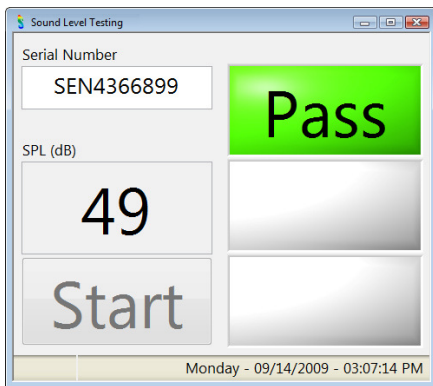
SenSound • 440 Burroughs St., Suite 170, Detroit, MI 48202
 Tel • 313-882-1065 • Fax 313-731-0432 • info@SenSound.com



SenSPL provides an easy means for the user to set pass fail metrics. The user can set the overall frequency range, the SPL (sound pressure level) unit, etc.

The system can flag a unit failed if the SPL exceeds a certain dB or dBA level or flag a warning if the level is below a specified level, typically indicating that the device is not turned on.

The system can be customized to integrate with existing test stands or be set up as a stand alone test system. In either case SenSound can provide custom operator GUI such as the one shown below. The system can also pass messages to other test automation systems.



Advantages

- No need for an enclosure and associate floor space and maintenance costs
- Fast test cycle times for 100% testing
- SPL spectra of direct sound from a target
- Suitable for low signal to noise ratios (up to S/N = -20dB)

Integration Options

SenSound's SenSPL core technologies are tailored to the customers test environment and needs. SenSound will provide stand-alone turnkey solutions if required, or will work with the customer's in-house team test team, or in partnership with the customer's preferred test stand vendor.

www.SenSound.com

SenSound • 440 Burroughs St., Suite 170, Detroit, MI 48202
Tel • 313-882-1065 • Fax 313-731-0432 • info@SenSound.com