Convergence Instruments

NSRT_mk4 series

Calibration



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1 Factory Calibration

The NSRT series of sound level meters are factory-calibrated and the calibration certificate showing the frequency response of the individual instrument, together with the IEC61672-2002 type I limit lines, can be automatically downloaded from Convergence Instrument's servers and printed. This is done from the Instrument Manager application while the instrument is connected to USB.
The calibration certificate looks like the one shown below:

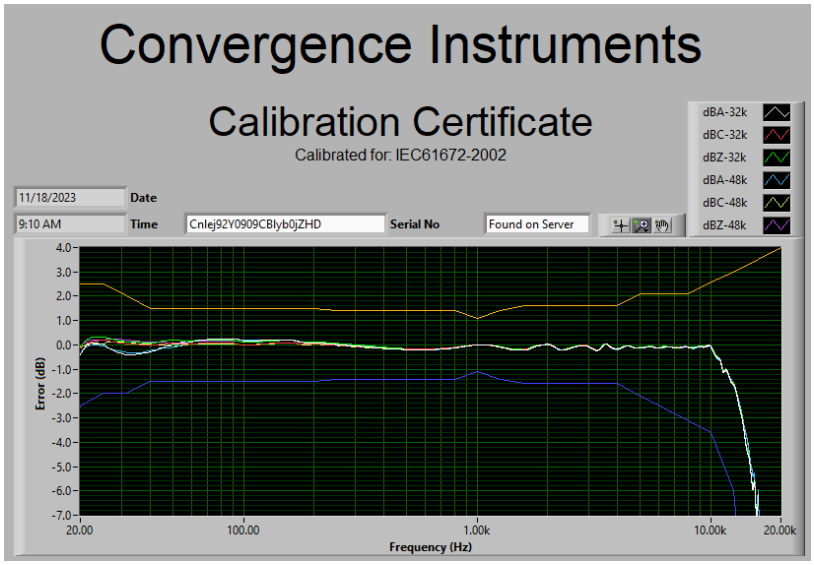


Figure 1

Note: The PC running Instrument Manager must be connected to the internet to be able to access the calibration certificate on Convergence Instrument's servers.

1.1 Factory Calibration Recovery

If at any time the factory calibration is lost and needs to be recovered, a menu in Instrument Manager allows that recovery. Following that menu activation, the Manager will connect to Convergence Instrument's servers, download the calibration values for the individual instrument in question and restore the calibration into that instrument.

Note: The PC running Instrument Manager must be connected to the internet to be able to access the calibration values on Convergence Instrument's servers.

2 Field Calibration

The NSRT series of sound level meters can be field calibrated using a calibrator with a 1/2" opening and working at 1 kHz and 94 dB. If the calibrator also has a 114 dB setting, make sure you use the 94 dB setting and NOT the 114 dB setting.

Proceed as follows

- Insert the instrument in the calibrator.
- Start the 1 kHz tone generation.

- Wait until the calibrator level stabilizes. This typically takes a few seconds. The feedback loop in the calibrator will adjust the calibration level in steps, and then the level will be steady.

- Press the *Calibrate* button in Instrument Manager.



Figure 2

The following points must be taken into consideration:

- Only use a calibrator that has a reference microphone and feedback loop, such as AWA6022A: https://convergenceinstruments.com/product/sound-level-calibrator-class-2-model-awa6022a/ Open loop calibrators that rely on the volume of air in the cavity will not provide an accurate 94 dB-SPL pressure, because the internal geometry of the microphone is not typical of a measurement microphone.

- Always insert the instrument in the calibrator and remove it from the calibrator as slowly as possible. If the calibrator is properly sealed the increase in static pressure when inserting, and decrease when removing, can damage the MEMS microphone. Going slowly gives time for the pressure change to be lowered by equalization ports in the MEMS structure of the microphone and in the calibrator.

- Always remove the instrument from the calibrator as in-axis as possible, and without any twisting motion, to avoid ripping out the grille from the head of the instrument.

- Do not touch the instrument or create loud noises while the calibration is in progress. A very loud noise would add to the signal generated by the calibrator and would offset the calibration.

3 Frequency Response Check

Because the geometry of the microphone is not typical, we do not recommend checking the frequency response of the instrument in a coupler at frequencies above 4 kHz. To correctly assess the frequency response of the instrument at frequencies above 4 kHz, we recommend a test in an anechoic chamber.