Class 1 Calibrator Nor1251

Sound calibrators - No sound measurement is correct without them.

The use of sound calibrators dates back to the days when it was easier to design a stable sound calibrator than a stable sound level meter. Today, sound measuring instruments, in general, are as stable as the sound calibrators.

However, measuring microphones are very delicate devices designed to fulfill very rigid specifications. This makes them vulnerable and subject to damage unless care is taken.

One may therefore say that a calibrator is just as much a verification of proper operation as it is a device for re-adjustment of sensitivity of sound measuring instruments.

The Norsonic Nor1251 is a class 1 calibrator in accordance to IEC 60942.

Features

- Self compensating precision class 1 acoustic calibrator!
- Fully certified and individual accredited calibrated to international standards.
- Automatically adjusts for changes in the load volume applied to the calibration cavity thereby removing the need for the manual correction of the level for the effective volume of different types of microphone.
- Compensates for changes in temperature, humidity and barometric pressure to remove the need for manual corrections for these parameters.
- Output level 114.0 ± 0.2 dB @ 1kHz.
- Meets the requirements of IEC 60942 class 1.
- Automatically switches off when the microphone is removed from the calibration cavity.
- Accreditated calibrated

The Nor1251 is a class 1 calibrator with an output level of 114 dB @ 1 kHz. The calibrator accepts full-inch cartridges right away and ½-inch cartridges by means of the included adaptor.

An optional adaptor (the Nor1444) – available separately, permits the use of the calibrator with ¼-inch cartridges.

The sound calibrator operating principles

The microphone to be calibrated is placed in the coupler of the sound calibrator where the sound pressure level is generated by a miniature loudspeaker. The electrical signal – driving the loudspeaker – is generated by an electronic oscillator.

The sound pressure generated is measured with a pressure sensitive silicon sensor. This signal is used to adjust the level of the oscillator signal.

The rear side of the silicon sensor is located in a separate, vented cavity to prevent pick-up of extraneous noise signals. Noise pick-up is further reduced by the use of a bandpass filter in the feedback path.

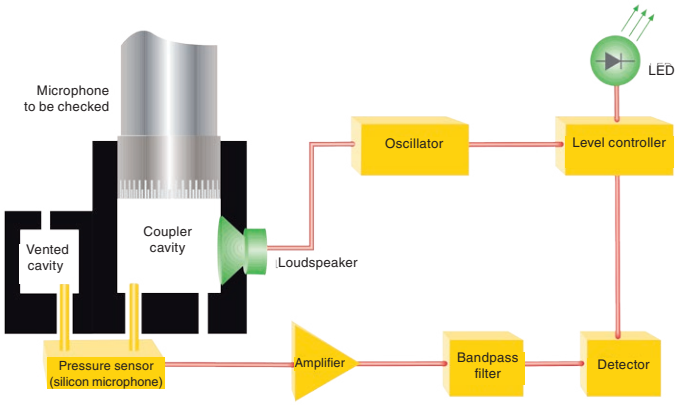
Because of the high stability of the silicon sensor and the electronic controller, the acoustic signal generated becomes virtually independent of the battery voltage and ambient conditions such as temperature, humidity and the atmospheric pressure.

The feedback principle automatically compensates for variation in the equivalent volume of the microphones. Hence, it creates an effective coupler volume many times the volume given by the mechanical dimensions of the coupler. The system even compensates for drift in the loudspeaker.

The acoustic coupler is vented to the inside of the sound calibrator, which in turn is vented to the outside for equalisation to the atmospheric pressure. A separate channel vents the rear side of the reference transducer to the outside of the sound calibrator.

A light emitting diode (LED) illuminates whenever the level control is in balance. When there is no microphone placed in the coupler, the loudspeaker will in general fail to generate and maintain the correct sound pressure in the coupler. This situation is indicated by a non-iluminated LED and the calibrator will thereafter switch off.

An electronic circuit inside the calibrator will switch off the power at approximately five minutes after the ON button was pressed. If a longer time period is required then the power button has to be fixed in the ON position.



Specifications

IEC60942 (2003-01) Classification:	Class 1
Complies with ANSI S1.40 (1997):	Yes
Sound pressure level (re: 20µPa):	114.0 ± 0.2 dB
Frequency:	250 Hz ± 0.2%, 1000 Hz ± 0.2%
Distortion:	<1%
Sensitivity to change in the load volume:	+0.0003 dB/mm3 (1000Hz)
Typical change in SPL per year:	< 0.01 dB
Time for level to stabilise:	< 2 sec
Microphone cartridge size:	1'', 1/2'', 1/4'' [1)]
Controls:	Power-on push button with green LED indication. Automatic shut-off when the microphone is removed (except for ¼")
Temperature range:	-10°C à +50°C
Ambient pressure range:	65-108 kPa
Humidity range:	10-90 %RH
Battery type:	9V 6LR61
External supply voltage (via battery connector):	7.5–15Vdc. Automatic shout-off when Vbatt<7.5Vdc
CE classification, EMC:	EN561000-6-1, EN61000-6-3 following the provisions for the LVD- and EMC-directive
Size:	L : 109.5 mm ; ∅ : 40 mm
Weight:	185 g with battery

[1)] By the use of adapter Nor1444

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