

CEL-284/2 & CEL-282 ACOUSTIC CALIBRATORS

Introduction

The CEL-284 and CEL-282 are manufactured to stringent international standards to meet the need for frequent acoustic checks on sound level meters.

The calibration of Sound Level Meters is an essential procedure when carrying out any type of noise survey. Calibration, both before and after each measurement operation, ensures that the meters are providing consistent and accurate readings.

Users of acoustic equipment are urged to recognise the need for regular field calibration, especially if the method employed to monitor sound levels must meet a recognised standard. An acoustical calibrator should be applied to the microphone to check the correct operation of the measuring instrument.

Some earlier electromagnet devices exhibited undesirable temperature effects and harmonic distortion but the current generation of acoustical calibrators from CEL has overcome these problems. Fully meeting the stringent requirements of IEC 942, ANSI SI. 40-1984 and the CEL-284/2 and CEL-282 have been designed for regular operational checks by the user on Type 1 and Type 2 sound level meters respectively.

These compact, pocket-sized instruments are suitable for calibrating 1/2" microphones, and 1/4" microphones with the use of the coupler CEL-4725 that is supplied with each calibrator

TECHNICAL SPECIFICATIONS

CEL-284/2 Acoustic Calibrator Class 1

Type: Calibrator to IEC 942 Class 1 and ANSI SI.40-1984.
 Calibration Reference Conditions: 20°C, 101.3 kPa, and 65%RH.
 Calibration Level: (at ref. conditions) 114.0 dB ±0.3 dB.
 Calibration Frequency: 1 kHz ±5 Hz.
 Harmonic Distortion: 0.5%.
 Operating Temperature Range: +5 to +35°C ±0.3 dB, and -10 to +50°C ±0.5 dB.
 Effect of Humidity: ±0.3 dB in the range from 10 to 90%RH referred to 65%RH, and in the absence of condensation.
 Output Voltage: 100 mV RMS ±1 mV at 1 kHz.
 Battery: 1 x IEC type 6LF22 (alkaline manganese).
 Battery life: Better than 24 hours.
 Dimensions: 45 x 68 x 125 mm (1.8 x 2.7 x 4.9 in).
 Weight: (including battery) 225g (0.5 lb).

ORDERING INFORMATION

CEL-284/2 Acoustic Calibrator Class 1
 Including: Batteries and Microphone Coupler CEL-4725.

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Key Features

- Class 1 and 2 calibrators available
- 114.0 dB level to ensure accurate calibration in noisy environments
- 100 mV RMS output from CEL-284/2 for electrical calibration of vibration measurement systems

Operated by a single On/Off switch, both versions provide an acoustic calibration signal at 114.0 dB using a 1 kHz sine wave. The CEL-284/2 (Class 1) also provides an electrical output signal at 100 mV RMS and 1 kHz for the electrical calibration of vibration measuring systems.

The calibrators can be used with the following microphone types:

Microphone Type	Nominal Level (dB) (At S.T.P.)
1/2" microphones	
CEL-186/2F	114.0 dB
CEL-186/2RP	114.0 dB
CEL-186/3F	114.0 dB
CEL-192/1F	114.0 dB
CEL-192/2F	114.0 dB
CEL-192/3F	114.0 dB
CEL-250	114.0 dB
B & K 4133	113.8 dB
B & K 4134	113.8 dB
1/4" microphone* (plus preamplifier)	
CEL-230	114.0 dB
CEL-425	114.0 dB
CEL-485	114.0 dB
CEL-301/302	114.0 dB



The Calibration Department at the Casella CEL Service Office in New Hampshire can provide calibration certificates for all of its acoustic calibrations. These Calibrations are traceable to NIST using test equipment which itself meets the requirements of national quality assurance product certification and type approval schemes.

While the use of a portable acoustic calibrator such as the CEL-282 or CEL-284 is recommended on a day to day basis we also strongly recommend that the calibrators themselves and the associated sound level meters are returned to the CEL Calibration laboratory every 12 months to ensure complete compliance against users quality systems such as ISO 9000 or equivalent.

CEL-282 Acoustic Calibrator Class 2

Type: Calibrator to IEC 942 Class 2 and ANSI SI.40-1984.
 Calibration Reference Conditions: 20°C, 101.3 kPa, and 65%RH.
 Calibration Level: (at ref. conditions) 114.0 dB ±0.5 dB.
 Calibration Frequency: 1 kHz ±5 Hz.
 Harmonic Distortion: 0.5%.
 Operating Temperature Range: +5 to +35°C ±0.3 dB, and -10 to +50°C ±0.5 dB.
 Effect of Humidity: ±0.3 dB in the range from 10 to 90%RH referred to 65%RH, and in the absence of condensation.

Battery: 1 x IEC type 6LF22 (9 V alkaline manganese).
 Battery life: Better than 24 hours.
 Dimensions: 45 x 68 x 125 mm (1.8 x 2.7 x 4.9 in).
 Weight: (including battery) 225g (0.5 lb).

CEL-282 Acoustic Calibrator Class 2
 Including: Batteries and Microphone Coupler CEL-4725.