

CEL-184 Acoustic Calibrator



Handbook

Introduction

The CEL-184 Acoustic Calibrator has been designed to provide an inexpensive means of checking the calibration of general purpose sound level meters as required by accepted instrumentation practice. It provides a continuous acoustic output of 90dB at a frequency of 1kHz and will accept any standard 1" microphone. A range of reducing couplers is available for use with smaller diameter microphones.

Schedule of Parts

The description CEL-184 refers to the following items and upon receipt they should be checked against this schedule:

CEL-184	Acoustic Calibrator
CEL-2958	Case*
6F22	9 V Battery
	Handbook

* This item is not provided when the calibrator is provided as part of a sound level meter kit as it is then housed within the instrument's system case.

Preparation of the Instrument

A battery is normally supplied with the CEL-184 Calibrator but this is not fitted in order to prevent accidental operation or battery leakage whilst in transit. To connect the battery the black sleeve is unscrewed from the chromed head then carefully slid off. The battery may then be connected to the flying lead and located into the battery cradle. The battery forms an interference fit in this cradle and care is therefore needed when inserting the battery and when removing or replacing the black sleeve to prevent damage to any of the electronic components mounted on the printed circuit board.

If the slider switch is now moved to its (Cont continuous) position the calibrator will start operating and the battery condition light will illuminate. The battery must be replaced when the lamp fails to light upon turning the calibrator ON. It is good practice to remove the battery if the calibrator is to be stored for a period of time.

The CEL-184 is suitable for calibrating any instrument that is fitted with the Industry standard 1" diameter microphone capsule whilst the couplers, shown below as available for use with smaller diameter microphones. This table also indicates some of the instruments that use these microphones.

Coupler Type	Nominal Microphone Diameter	Instrument Type
CEL-2834	12mm	CEL-183, 206, 210, 223
CEL-3379	11mm	CEL-214, 228, 283

Calibration

Where a coupler is used this must be placed over the microphone first ensuring that the face of the microphone passes both "O" rings and mates against the seat in the coupler. The coupler, or 1" microphone, may then be inserted into the calibration cavity, again ensuring that it is correctly located against the shoulder in the base of the cavity.

Once the microphone is inserted correctly the calibrator may be switched ON and the sound level meter indication adjusted as described in its instruction manual.

Care and Maintenance Procedures

The CEL-184 requires very little routine maintenance. If difficulty is experienced in inserting the microphone a very small amount of silicone grease should be smeared on the "O" ring located in the calibration cavity. To prevent damage by battery acid, the battery should always be removed when storing the calibrator.

The nominal calibration level is 90dB but it must be borne in mind that the level generated is directly proportional to the volume of the calibration cavity, hence it is important to use the correct coupler in the manner described. Altitude and, to a lesser extent, barometric pressure also affect the results; however, these errors are not excessive in normal inhabited zones. For use with precision sound level meters or in those situations where a higher degree of accuracy is required the CEL-177 Precision Acoustic Calibrator is recommended.

Manufacturer's Servicing And Warranty Arrangements

Each instrument has been carefully inspected and calibrated prior to dispatch from our factory in order to ensure its rigid conformity with the requirements of our specification. All technical information relating to individual instruments is filed under the instrument's serial number. It is important, therefore, to always quote this number in any correspondence with the manufacturers. The serial number is located on the back of the instrument. The manufacturers undertake to rectify any defect in the instrument that is directly attributable to faulty design or assembly and which becomes apparent during the first twelve months from the date of the initial calibration.

Many of the specialized components used in the instrument are subject to separate warranties by their actual manufacturers and in all cases benefit of these undertakings will be passed onto the end user. However, Computer Engineering's (CEL's) liability is limited to items of their own manufacture and they do not accept liability for any loss resulting from the operation or interpretation of the results from this equipment. In the event of a malfunction developing the instrument should be carefully packed and returned to either the manufacturer's agent in the territory or, in the case of domestic sales, to our Fitchburg factory along with a detailed description of the fault. The necessary repairs will be undertaken and the instrument returned as soon as possible. After the warranty has expired, except on approved accounts, service work is undertaken against quotation and all packing and transit costs are charged extra. In the case of sales in the UK, service contracts are available for the instruments and full details of these are available on request.

Specification

Sound pressure level	Nominally 90dB±1dB
Operating Mode	Continuous
Frequency	1kHz±2%
Dimensions	118mm x 45 mm (4.65" x 1.75")
Weight	7.92 ounces (225g)
Power Consumption	9mA approx. 7V-10V
Temperature Range	10-30 °C (50-86 °F)

Calibration Certificate

CEL-184 serial number

Date

Inspector

CEL Instruments are manufactured and serviced by:

Casella CEL Inc.
17 Old Nashua Road #15,
Amherst, NH 03031 USA
PHONE (800) 366-2966
FAX (603) 672-8053
Info@CasellaUSA.com

In line with our policy of continual design improvement we reserve the right to amend any of the details in this handbook.

Issue 2

June 1986