

The 1986 is designed to permit checking of nearly all characteristics of a sound level meter as specified by IEC and ANSI standards.

### Features:

- Capable of testing all the basic characteristics of virtually any sound level meter
- Multiple levels: 74, 84, 94, 104, 114 dB re 20  $\mu$ Pa
- Multiple frequencies: 125, 250, 500, 1000, 2000 and 4000 Hz.
- Calibrated tone bursts for fast and slow responses
- Crest factor capability
- Analog output
- Battery operated



**1986 Omnical Sound Level Calibrator**

The 1986 is designed to permit checking nearly all the characteristics of a sound level meter as specified by IEC and ANSI standards. With its supplied and optional microphone cavity adapters, it can be used with all types and sizes of commonly used measurement microphones.

The calibrator generates tones at six different frequencies, from 125 Hz to 4 kHz in octave steps, and different sound pressure levels, from 74 to 114 dB in 10 dB steps. This allows a sensitivity check of an acoustic instrument near the specific frequency and level of each measurement being made.

The frequency response of an overall sound-measuring system, weighting network or filter may also be checked.

The two sources of linearity error in a sound measuring instrument are easily checked with the 1986. One source is the indicator scale (meter or digital display) and the other source is the level range control.

The multi-level output of the 1986 allows selection of different levels on a sound measuring system and a check of the instrument's response at each level.

Standards require that Fast detector response be tested by applying a sinusoidal signal having a frequency of 1 kHz and a duration of 200 ms.

Slow detector response is tested by applying a sinusoidal signal having a frequency of 1 kHz and a duration of 500 ms. The 1986's tone burst mode allows checking to the above requirements by automatically presenting a 1 kHz sinusoidal signal of either 200 ms or 500 ms duration.

The 1986 permits a check of rms accuracy and crest factor capability by presenting repeated tone bursts with a high crest factor.

The transducer on the 1986 is resiliently mounted to protect against damage from the accidental bumps and drops often encountered in field calibration situations. The entire assembly, except for the test cavity, is enclosed in a molded plastic case that is tightly sealed against dust and moisture.

The cavity of the 1986 is designed to fit GenRad 1" microphones, the WE 640AA and Tokyo Riko MR 130.

An adaptor is included to accommodate GenRad 1/2 inch microphones.

An optional 1986-9700 adaptor set allows you to use the 1986 on instruments with Bruel & Kjaer 1", 1/2" and 1/4" microphones, the Shure Brothers 1/8" microphone, and the 3/8" microphone on GenRad's 1954 Noise Dosimeter.



### SPECIFICATIONS

**Output sound-pressure levels:** 74, 84, 94, 104, or 114 dB re 20  $\mu$ Pa

**Nominal output frequencies:** 125, 250, 500, 1000, 2000 or 4000 Hz

**Actual output frequencies:** Preferred per ANSI S1.6-1960 and ISO R266: 125.9, 251.2, 501.2, 1000, 1995 or 3981 Hz  $\pm$ 3%.

**Reference conditions:**

**Temperature:** 20°C (68°F)

**Atmospheric pressure:** 1013 mbar (760 mm of Hg) (30 in. of Hg)

**Relative humidity:** 65%

**Microphone effective volume:** 0.5 cm<sup>3</sup> (0.03 in.<sup>3</sup>) (nominal for GR 1961 Electret-Condenser Microphone)

**Accuracy of sound-pressure Level:** Understated reference environmental conditions;

114 dB SPL all frequencies, except 4 kHz, for cavity alone or when used with any adaptor (except 1½" adaptor):  $\pm$ 0.25 dB

114 dB SPL at 4 kHz:  $\pm$ 0.5 dB

At output levels other than 114 dB SPL, tolerance is increased by:  $\pm$ 0.1 dB

1½" adaptor:  $\pm$ 0.5 dB at 1 kHz only

**Temperature coefficient of sound-pressure level:** Less than  $\pm$ 0.02 dB/°C for all frequencies except 4000 Hz

**Tone-burst signals:** Test signals provided as prescribed by ANSI S1.4-1971; IEC Publications 123-1961, 179-1973 and 179A-1973; and Consolidated Revision of IEC Publications 123 and 179. In tone burst modes, output can be either continuous (SET FAST/SLOW or SET CREST FACTOR) or series of bursts (FAST, SLOW or CREST FACTOR), as selected. Level is uncalibrated and continuously adjustable.

In FAST or SLOW, peak amplitude of tone burst is identical to that of continuous signal.

In CREST FACTOR, rms value of tone burst sequence is identical to that of continuous signal.

**FAST:** repeated tone bursts at 1 kHz, 200 ms duration every 2 s, for measuring sound level meter FAST rise response; amplitude is continuously variable from 72 dB to 118 dB re 20  $\mu$ Pa; background level is 20 dB below burst level.

**SLOW:** repeated tone bursts at 1 kHz, 500 ms duration every 10 s, for measuring sound-level-meter SLOW rise response; amplitude is continuously variable from 72 to 118 dB re 20  $\mu$ Pa; background level is 20 dB below burst level.

**CREST FACTOR :** repeated tone bursts at 2 kHz, 5.5 ms duration, 40-Hz repetition rate, crest factor 3, for measuring rms detector-indicator accuracy and amplifier crest-factor capacity ; rms amplitude is continuously variable from 75 to 111 dB re 20  $\mu$ Pa.

**Variable sound-pressure-level control:** Enabled only in tone-burst modes. Provides 11 dB of adjustment

**Electrical output:** Output provided from nominal 600  $\Omega$  shortable source. Voltage proportional to sound pressure; 230 mV  $\pm$ 30 mVrms nominal output corresponding to 114 dB SPL

**Distortion:** <1% THD acoustical or electrical

**Power:** Powered by 9 V alkaline battery; battery provides at least 8 h continuous operation

**Battery test:** Internal circuitry checks condition of battery continuously with automatic instrument shutdown when battery voltage falls below acceptable range

**Microphone coupling:** Transducer cavity accommodates following 1" microphones: GenRad 1961 electret-condenser, and GenRad 1971 ceramic

**Temperature:**

Operating: -10°C to +50°C (+14°F to +122°F)

Storage: -40°C to +70°C (-40°F to +140°F), with battery removed

**Humidity:** 0% to 90% R.H. non-condensing, operating

**Dimensions:** (wxhxd): Approximately 280 x 67 x 165 mm (11 x 2.625 x 6.5 in.)

**Weight:** Approximately 1 kg (2.2 lb)

### ORDERING INFORMATION

**STANDARD MODELS**

**1986-9700** Omnical Sound Level Calibrator  
Includes: Instruction Manual  
9 V battery  
GenRad ½" adapter 1987-7061  
1986-9600 Carrying Case

**OTHER OPTIONS**

**1987-9600** Calibrator Adapter Set; includes adapters for Bruel and Kjaer 1", ½" and ¼" microphones and others

