

1981-B Precision Sound-Level Meter

- digital and analog displays
- digital display can hold maximum level
- 30 to 120 dBA
- digital display can be "frozen" at any instant
- 50-dB analog scale has 1-dB linear calibration
- meets ANSI S1.4-1971 Type S1A and IEC 651
- approved by MSHA

The 1981-B combines both digital and analog displays in a single instrument. The dual-display capability of the 1981-B simplifies accurate data collection and the digital display gives you the advantage of more accurate (repeatable) readings, even for the most inexperienced users of sound-level meters.

The 1981-B spans 30 to 120 dBA in two switch-selectable 50-dB ranges.

Digital display The digital display on the 1981-B has three operating modes for maximum ease of use in a variety of measurement situations; CONTINUOUS, MAXIMUM HOLD, and CAPTURE DISPLAY.

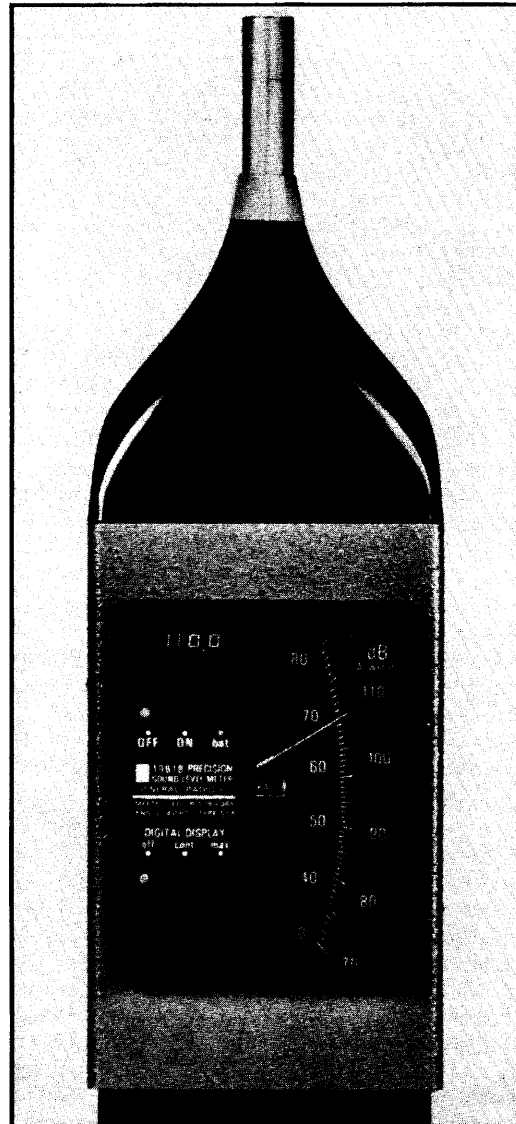
In the CONTINUOUS mode the digital display tracks the reading on the analog meter. This mode is normally used for general-purpose noise surveys, giving the user the option of reading the measured level on either the digital or analog display.

The CAPTURE DISPLAY mode lets you capture and hold a reading on the digital display at any given moment by simply pushing a button. This mode is especially useful when you wish to measure the sound level of a specific event. You need only press the CAPTURE DISPLAY button when the event occurs and the sound level will be displayed and held constant. The level is held until you release the button so that you have adequate time to record the reading.

In the MAXIMUM HOLD mode of operation the digital display made be set to update and hold the maximum A-weighted sound level automatically during a measurement period. This eliminates meter watching and operator interpretation of the analog display when you wish to measure the maximum sound level encountered. This mode is particularly significant for vehicle passby measurements. It permits you to measure and hold the maximum level during the passby and, at the same time, to observe the sound level rise and fall on the analog meter to ascertain that a valid measurement has been made.

Two models To satisfy users who must comply with either or both American and International Standards, the 1981-B is available in two versions. One version is supplied with a flat random-incidence response GenRad Electret-Condenser Microphone. This model conforms to IEC 651, Type 1, and, when used with either a GenRad 1986 or 1987 Sound-Level Calibrator, it conforms to ANSI S1.4-1971 Type S1A.

The second version is supplied with a flat perpendicular-incidence response GenRad Electret-Condenser Microphone and conforms to IEC 651. This model is designed for use in countries where ISO Recommendations apply.



Accessories available The 1981-B and a calibrator will satisfy most measurement requirements. For those contemplating vehicle-noise measurements, a calibrator, carrying case, tripod and extension cable should be ordered to provide a complete system.

SPECIFICATIONS

Standards: Instruments with a GenRad 1/2-in. flat *random-incidence* response Electret-Condenser Microphone conform to IEC 651 and, when used with a GenRad Sound-Level Calibrator, to ANSI S1.4-1971 Type S1A.

Instruments with a GenRad 1/2-in. flat *perpendicular-incidence* response Electret-Condenser Microphone conform to IEC 651.

National stock numbers are listed before the Index.

Measurement Range and Response Characteristics:
SOUND LEVEL RANGE: 30 to 120 dBA in two 50-dB switch-selectable ranges; 0-dB reference is 20 μ Pa.
FREQUENCY RESPONSE: "A" weighting. **DETECTOR* CHARACTERISTICS:** Rms response. Crest-factor capacity, X5 at full scale. **DYNAMICS:** Fast and slow, switch selected.

Displays: **ANALOG:** Meter 3-in scale, 30 to 80 and 70 to 120 dBA; increments 1 db. **DIGITAL READOUT:** 4-digit with decimal point, "LED," 7-segment numerals; increments 0.1 dB. **DIGITAL-DISPLAY MODES:** OFF, for minimum battery drain; **CONTINUOUS**, like meter except present reading can be "captured" by push-button; **MAXIMUM**, automatically holds highest level in measurement interval, until reset by pushbutton.

Microphone and Terminals: **MICROPHONE:** GR 1/2-in. electret-condenser, 2 response types (see description). **MICROPHONE CONNECTOR:** Input impedance approx 1 G Ω , parallel 5 pF. **AC OUTPUT:** Weighted, 500 mV nominal full scale, behind 5 k Ω . **DC OUTPUT:** Approx 10 mV/dB, linear, 500 mV nominal full scale, behind 100 k Ω . Both outputs are short-circuit-proof; both receive subminiature phone plugs (0.097 in., 2.5 mm dia.). **INPUT:** 1/2-in. electret-condenser microphone with flat response (random or perpendicular incidence); mounted with detachable pre-amplifier (1933-4000) that plugs into nose of instrument, or may be removed with accessory 10- or 60-ft cable.

Calibration: **FACTORY:** The sound-level meter with microphone is fully tested and calibrated to all specifications; acoustical response and sensitivity are measured in a free field by comparison with a Western Electric 640AA Laboratory Standard Microphone whose calibration is traceable to the U.S. National Bureau of Standards. **FIELD:** GenRad 1986 or 1987 Sound-Level Calibrators are available for making an overall pressure calibration.

Environment: **TEMPERATURE:** -10 to +50° C operating, 15 to 50° C battery charging, -25 to +60° C storage with battery pack supplied. **HUMIDITY:** 0 to 90% RH, operating and storage.

Supplied: Wrist strap, battery pack, battery charger, screwdriver for calibration adjustment, miniature phone-plug connectors, windscreen, instruction manual.

Available: Calibrators, rechargeable battery pack, spare, microphone extension cables, tripod, carrying case (includes space for accessories), microphone windscreen (package of 4), tripod.

Power: Removable battery pack containing 3 AA-size nickel-cadmium rechargeable cells with charger interlock. Battery life between recharges, 5 to 10 hours depending on digital display usage. Battery charger (supplied) for 115/220 Vac 50-60 Hz operation; full recharge accomplished in about 4 hours. Instrument may be operated continuously from ac power by using charger; in this case battery pack is trickle-charged. Three AA-size primary cells (not rechargeable) may be used in place of the battery pack.

Mechanical: **DIMENSIONS (wxhxd):** 3.4 x 11 x 2.3 in. (87 x 292 x 59 mm). **WEIGHT:** 30 oz (0.8 kg) net, 5.5 lb. (2.5 kg) shipping.

*U.S. Patent 3,681,618.

National stock numbers are listed before the Index.



A typical 1981-B Sound-Analysis System.

Description	Catalog Number
1981-B Precision Sound-Level Meter	
With 1/2" electret condenser microphone (random incidence)*	1981-9750
With 1/2" electret condenser microphone (perpendicular incidence)**	1981-9751
1986 Omnical Sound-Level Meter	1986-9700
1987 Minical Sound-Level Meter	1987-9700
Carrying Case (for 1981-B, calibrator, tripod)	1982-9630
Microphone Extension Cable (10 ft)	1933-9600
Microphone Extension Cable (60 ft)	1933-9601
Rechargeable Battery Pack (spare)	1981-2050
Tripod	1560-9590
Windscreen (package of 4)	1560-9522

*Conforms to ANSI S1.3 1971 Type S1A and IEC 651

**Conforms to IEC 651