



**DIGITAL SOUND
LEVEL METER**

**OPERATION
MANUAL**

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1. FEATURES

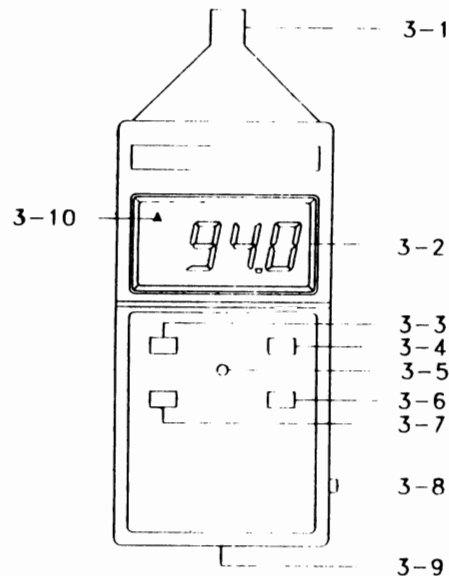
- * Large LCD display, easy to read.
- * Designed to meet IEC 651 type 2.
- * A & C weighting networks are conformity to standards.
- * FAST & SLOW dynamic characteristic modes.
- * AC/DC output for system expansion.
- * Internal oscillation system for calibration.
- * Condenser microphone for high accuracy & long-term stability.
- * MAX HOLD function for stored the maximum value on display
- * Warning indicator for over and under load.
- * LCD display for low power consumption & clear read-out even in bright ambient light condition.
- * Used the durable, long-lasting components, including a strong, light weight ABS-plastic housing case
- * Small and light weight design allow one hand operation.
- * Low battery indicator

2. SPECIFICATIONS

Display	18mm (0.7") LCD (Liquid Crystal Display), 3 1/2 digits.
Function	dB (A & C Weighting), Fast, Slow, Max. hold, AC output, DC output.
Measurement Range	A Weighting – 30 to 130 dB C Weighting – 35 to 130 dB
Resolution	0.1 dB.
Accuracy (23 ± 5°C)	: Meet IEC 651 type 2 (ref. page. 7) (after calibration, calibration point on 94 dB, 1000 Hz).
Calibrator	: B & K (Bruel & Kjaer), MULTIFUNCTION ACOUSTIC CALIBRATOR.
Frequency	: 31.5 to 8,000 Hz.
Microphone	: Electric condenser microphone.
Microphone Size	: 12.7mm DIA. (0.5 inch).
Weighting Network	: Characteristics of A & C.

Range selector	30 to 80 dB, 50 to 100 dB, 80 to 130 dB, 50 dB on each step, with over/under range indicating.
Response	Fast - $t = 200$ ms, Slow - $t = 500$ ms. * The "Fast" & "Slow" response range are designed to meet IEC 651 requirement. Fast - similar is human ear response time. Slow - for slowly varying noise measurement
Calibration	Internal oscillation system, 1 KHz sine wave generator.
Output Signal	AC output - AC 0.5 Vrms corresponding to each range step. DC output - DC 0.3 to 1.3 VDC, 10 mV per dB Output impedance - 600 ohm.
Out terminal	3.5 ϕ phone output terminal is provided for connection with analyzer, level recorder, tape recorder
Operating Temp.	0 $^{\circ}$ C to 50 $^{\circ}$ C (32 $^{\circ}$ F to 122 $^{\circ}$ F)
Operating Humidity	Max 90% RH (0 $^{\circ}$ to 35 $^{\circ}$ C)
Power Supply	006P DC 9V battery (heavy duty type)
Power Consumption	Approx. DC 6mA.
Dimension	205 x 80 x 35mm (8.0 x 3.2 x 1.4 inch)
Weight	280 g/0.62 lb (including battery)
Standard Accessory	Instruction Manual 1 pc Calibration screw driver 1 pc

3. FRONT PANEL DESCRIPTION



- 3-1 Electric condenser microphone
- 3-2 Display
- 3-3 Power switch & Output type selector
- 3-4 A/C weighting & Calibration selector
- 3-5 Calibration VR (Sensitivity adjuster)
- 3-6 Fast/Slow/Max. hold selector
- 3-7 Range selector
- 3-8 Signal output terminal
- 3-9 Battery compartment/Cover
- 3-10 Range upper/lower indicator

4. CALIBRATION (internal system)

The sound level meter is built in the internal calibration system (1 KHz sine wave generator)

Please according the following procedures to calibrate the instrument before making operation. if the instrument not in use for a long time or operate at bad environment.

1. Slide Range selector (3-7) to "50-100" position.
2. Slide Fast/Slow selector (3-6) to "SLOW" position.
3. Slide A/C weighting & Calibration selector (3-4) to "CAL" position.
4. Carefully adjust the Sensitivity adjuster (3-5) with "-" screw driver, until the display read within "94.0 ± 0.2" dB.

5. MEASURING PROCEDURE

1. Slide the A/C weighting selector (3-4) to "A" or "C" position for sound level measuring

Note: a. The characteristic table of A, C weighting, please refer page 7

b. The characteristic of A weighting is simulated as the "Human Ear Listening" response

Typically if making the environmental sound level measurement, always select the A weighting typically

c. The C weighting characteristic is near the "FLAT" response, Typical it is suitable for measuring the SPL (sound pressure level) or checking the noise of machinery (Q.C. check) & knowing the real sound level of the tested equipment.

2. Determine proper measuring range by selecting the Range selector (3-7) to minimize the tolerance of readout.

When left corner of LCD show "▲" (Range upper/lower indicator, (3-10) it shows the dB range selection is upper or lower setting. Slide range selector to other range for measuring.

- As for getting high accuracy, please slide the range selector to the "50 - 100 dB" range if the reading values within 70 to 80 dB continuously
- As for getting high accuracy, please slide the range selector to the "80 - 130 dB" range if the reading values within 90 to 100 dB continuously.

3. Base on various noise source, select the response time selector (Fast/Slow selector, 3-6) to "Fast" or "Slow" position.

4. Hold the Instrument in hand and point the microphone at measured noise source, the sound level will be displayed on "dB" (decible) unit.

5. Max. hold – During the noise measurement, if need to store the maximum (peak) value on display, please slide the Fast/Slow/Max. hold selector (3-6) to the "Max. hold" position

*When measure long-term stability under slowly varying noise environment, please use the Max. hold function to read maximum value.

*Slide the selector to "Fast" or "Slow" position will cancel the max. hold values.

6. MEASURING CONSIDERATION

1. Please don't keep or operate the instrument at high temperature & humidity environment for a long period.

2. Keep microphone dry & avoid serious vibration.

3. Please select proper measurements range to minimize the tolerance of readout.

4. Please calibrate the instrument before operate, if the instruments not in use for a long time or operate at bad environment.

5. Please don't set Fast/Slow/Max. hold selector to "Max. hold" position during make instrument calibration

7. SIGNAL OUTPUT

The instrument is provided an 3.5 φ phone output terminal (3-8) for connection with analyzer, level recorder, tape recorder control ... etc.

Slide Power switch & Output type selector (3-3) to AC output or DC output base on requirement.

8. REPLACEMENT OF BATTERY

- (1) When the left corner of LCD display show "BAT", it indicate a normal battery output of less than 6.5V – 7.5 V. It is necessary to replace the battery. However, in-spec measurement may still be made for several hours after LOW BATTERY INDICATOR appears before the instrument become inaccurate.
- (2) Loose the Battery Cover Screw (3-9), slide the battery cover away from the instrument and remove the battery.
- (3) Replace with 9V battery and reinstall the cover.
- (4) Make sure the battery cover is secured with the screw after changing battery.

9. CHARACTERISTICS OF A & C WEIGHTING

Frequency Hz	A Weighting Charac.	C Weighting Charac.	Accuracy (IEC 651 type 2)
31.5	-39.4 dB	-3 dB	±3 dB
63	-26.2 dB	-0.8 dB	±2 dB
125	-16.1 dB	-0.2 dB	±1.5 dB
250	-8.6 dB	0 dB	±1.5 dB
500	-3.2 dB	0 dB	±1.5 dB
1k	0 dB	0 dB	±1.5 dB
2k	+1.2 dB	-0.2 dB	±2 dB
4k	+1 dB	-0.8 dB	±3 dB
8k	-1.1 dB	-3 dB	±5 dB