

## Digital Sound Level Meter



Thank you for purchasing your Digital Sound Level Meter from **RadioShack**. Please read this user's guide before installing, setting up, and using your new meter.

# Setup

## Package contents

- Digital Sound Level Meter
- Carry Case
- User's Guide
- Quick Start

## Features

- For home/hobbyist use: fine tune your stereo, PA system, or home theater
- Attaches to a tripod with ¼ inch connector
- Selectable weighting for noise level or musical sound
- Displays average or maximum sound level
- Integrated averaging from 1 to 199 seconds

## ① Install battery

Your meter requires one 9V battery (not included) for power. When **BATT** displays or the meter stops operating properly, replace the battery.

1. Set **RANGE** to **OFF**.
2. Remove the battery compartment cover by pressing both side in and lifting the cover.
3. Install one 9V battery (not included) as indicated by the polarity symbols (+ and -).

### **Battery Notes:**

- After using the meter, set **RANGE** to **OFF** to save power.
- Dispose of batteries promptly and properly. Do not burn or bury them.
- Use only fresh batteries of the required size and type.



- *If you do not plan to use your meter for a long period, remove the battery. Batteries can leak chemicals that may damage electronic parts.*

## ② Mount and connect the meter (Optional)

1. Mount the meter on a (1/4-inch) tripod to eliminate hand noise and minimize the effects of sound reflected from your body. This makes it easy to use the meter with auxiliary recording or test equipment.
2. Use an audio patch cord (not included) to connect the **OUTPUT Jack** to your stereo system or test equipment.

## ③ Set the sound range

Set **RANGE** to the desired sound range. If you cannot get a reading, try other ranges until you get a reading, refer to "**Continuous Average Measurements**" on Page 7.

## ④ Set the weighting

Press **WEIGHTING** to select **A** to determine the noise level of an area, or **C** to measure sound levels of musical material. Refer to "**Setting the Weighting**" on Page 5.

## ⑤ Set the response time

Press **RESPONSE** to set the response to **FAST** or **SLOW**. Refer to "**Setting the Response Time**" on Page 5.

## ⑥ Read the measurement

Point the microphone at the sound source. The meter displays the continuous average sound level. After the measurement, set **RANGE** to **OFF**.

# Setting the Meter

## Setting the Weighting

Press **WEIGHTING** to select **A** or **C**.

Weighting determines the meter's frequency response curve.

A-weighting has A-curve frequency characteristics and causes the meter to respond mainly to frequencies ranging from 500 to 10,000 Hz. This is the human ear's most sensitive range. Select **A** to determine the noise level of an area.

C-weighting has C-curve (flat) frequency characteristics and causes the meter to respond mainly to frequencies ranging from 32 to 10,000 Hz. Select **C** to measure sound levels of musical material.

 **Note:** You can change the weighting setting only during a continuous average or maximum measurement.

## Setting the Response Time

Press **RESPONSE** to select **FAST** or **SLOW**.

When set to **FAST**, the meter updates the bar graph every 0.2 seconds. When set to **SLOW**, the meter updates the bar graph every 0.5 seconds.

 **Note:** You can change the response setting only during a continuous average or maximum measurement.



# Understanding Indications

## Level Indicator

The meter displays sound level using a number and a bar graph. The number shows the sound level in dB within  $\pm 10$  dB of the selected range and is updated once a second.

The bar graph's center point represents the midpoint of the selected range, for example, for Range 70, the center point represents 70 dB. The bar graph updates every 0.2 seconds or 0.5 seconds.

## Overrange Indicator

When the sound level is higher than the highest number in the selected range, the bar graph goes to +10 dB and both the bar graph and the number that represents the next range flash.

For example, if the meter measures 91 dB in Range 80, then the number **90** and the bar graph flash. If the meter measures more than 126 dB in Range 120, the number **126** and the bar graph flash.

If you get the overrange indicator, try a higher range setting until you get a reading in the upper half of the range (0 to +10 dB).

## Underrange Indicator

When the measured sound level is lower than the lowest sound level of the selected range, **L0** appears



and the bar graph disappears. If this happens, try the next lower range.



### Notes:

- *The overrange or underrange indicator can also appear when you recall a reading using the measurement holding function and the measurement is under or over the selected range.*
- *The meter can measure sound levels only from 50 to 126 dB.*

## Taking Measurements

### Continuous Average Measurements

Follow these steps to measure the average sound level.

1. Set **RANGE** to the desired range setting. If the sound level is very high, start at the highest range setting (120) and reduce the setting until you get a reading.

There are seven ranges. Each covers 20 dB. The number of a range represents the center of the range. When the measured value is lower or higher than the set range, an underrange or overrange indicator appears. See "**Underrange Indicator**" and "**Overrange Indicator**" on Page 6. Take measurements at several different points in the area to get a good average.



### Notes:

- *If you set **RANGE** to 120, the meter measures sound levels from 110 to 126 dB.*
- *If you change the range setting during a measurement, you clear all the current data and a continuous average measurement resumes.*

2. Set the weighting and response (see “**Setting the Weighting**” and “**Setting the Response Time**” on Page 5).
3. Point the meter’s microphone at the sound source. The meter displays the continuous average sound level during a one-second sampling period and updates the number on the display once a second.
4. After the measurement, set **RANGE** to **OFF**.

## Taking Maximum Measurements

1. Follow Steps 1-3 in “**Continuous Average Measurements**”.
2. Press **MAX**; the word **MAX** appears.

The meter displays only the loudest measured sound level during the one-second sampling period. The bar graph shows the maximum level every 0.2 or 0.5 seconds.

The bar graph segment that corresponds to the peak reading stays on the display for 2 seconds or until the meter measures a higher maximum level.

3. Press **MAX** again to cancel the continuous maximum measurement. A continuous average measurement resumes.

## Integrated Average Measurements

Follow these steps to monitor the sound level and average the measurement over a period of 1 to 199 seconds. The meter stores the average, maximum, and minimum sound levels during the set time.

1. Press and hold **DH** for about 2 seconds during a continuous average or maximum measurement. The digit **1** appears.



2. Press (or press and hold) **MAX** or **MIN** to set a period from 1 to 199 seconds; position the meter for the measurement.
3. Press **RESET** to start the monitoring.

The meter updates the current integrated average display once a second. **MIN** and **MAX** flash until the set time is up. When the set time is up, **DH** appears, and **MIN** and **MAX** go on flashing. The meter displays the total integrated average sound level.

4. Press **MAX** to display the maximum sound level for the set time, press again to return to the total integrated average sound level.

Press **MIN** to display the minimum sound level for the set time, press again to return to the total integrated average sound level.

5. Press **RESET** after you check the average, maximum, and minimum sound levels. A continuous average or maximum measurement resumes.

#### **Notes:**

- If you change the **RANGE** setting during an integrated average measurement, you clear any stored data and a continuous average or maximum measurement resumes.
- You must repeat the procedure for taking an integrated average measurement.

## Taking Maximum and Minimum Measurements during an Undetermined Time Period

1. Press **RESET** during a continuous average or maximum measurement. At the end of the desired time period, press **DH**. **DH** displays.
2. Press **MAX** and **MIN** respectively to check the average, maximum (**MAX** stops flashing), and minimum (**MIN** stops flashing) sound levels during the time period.
3. Press **RESET** to resume a continuous average or maximum measurement.

## Checking Stereo System Acoustics

To check the sound of a stereo system, use an audio sample that produces pure tones, one at a time, at intervals that span the entire audio spectrum. Use C-weighting with either slow or fast response.

Make a graph or table to show the sound level each tone produces. This gives you a clear idea of the frequency response of the total audio system, including the room. To smooth out the response, adjust the tone control, change speaker placements, and use a frequency equalizer.

## Holding Measurements

You can store the current measurements in memory and freeze measurements on the display. The meter stores the average, maximum, and minimum sound levels for the last one second.

1. Press **DH** during a continuous average or maximum measurement. **DH** displays and the last average or maximum measurement is frozen.
2. For an average measurement, what is frozen is the last average reading. Press **MAX** to check the last maximum measurement. **MAX** displays. Press **MAX** again to return to the average measurement.

For a maximum measurement, what is frozen is the last maximum reading.

3. Press **MIN** to check the last minimum measurement. **MIN** displays. Press **MIN** again to return to the average or maximum measurement.
4. Press **RESET** to return to the continuous average or maximum measurement.

 **Note:** When you set **RANGE** to a different range during measurement holding, you disable the holding function and return to a continuous measurement.

## Care and Service

- Keep your meter dry and clean. If it gets wet or dirty, wipe it dry or clean immediately. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the meter.
- Use and store the meter in normal temperature environments only. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.
- Handle the meter gently and carefully. Dropping it can damage the circuit boards and cause the meter to work improperly.
- Modifying or tampering the meter's internal components can cause malfunction and might invalidate its warranty. If your meter is not performing as it should, take it to your local **RadioShack** store for assistance.

# Specifications

Battery .....	9V Alkaline
Microphone .....	Electret Condenser
Range.....	50 to 126 dB
Accuracy .....	±2 dB at 114 dB SPL
Reference .....	0dB = 0.0002 Micro Bar
Weighting.....	A and C
Display Response .....	Fast and Slow

## Signal Output:

Voltage.....	1 Volt Peak-Peak Min. (Open Circuit, Full Scale at 1 kHz)
Impedance .....	10 Kohm Min. Load
Distortion.....	Less than 2% at 1 kHz, 0.5 V p-p Output (Input: Mic Out, Output: 10 Kohm)
Operating Temperature .....	32 to 122 °F (0 to 50 °C)
Storage Temperature .....	-40 to 149 °F (-40 to 65 °C)
Dimensions (HWD).....	6¼ × 2½ × 1¾ inch (159 × 64 × 44 mm)
Weight (including battery) .....	6.7 oz (190 g)

Specifications are subject to change and improvement without notice. Actual product may vary from the images found in this document.

## Limited Warranty

**RadioShack** warrants this product against defects in materials and workmanship under normal use by the original purchaser for **ninety (90) days** after the date of purchase from a **RadioShack**-owned store or an authorized **RadioShack** franchisee or dealer. **RADIOSHACK MAKES NO OTHER EXPRESS WARRANTIES.**

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