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› Sound Level Tester Decibel Meter Datalogger User Manual

Gain Express SLM-441_R1

Sound Level Tester Decibel Meter Datalogger User Manual

Model: SLM-441_R1 | Brand: Gain Express

1. INTRODUCTION

This manual provides detailed instructions for the safe and effective operation of your Gain Express Sound Level Tester Decibel Meter Datalogger, Model SLM-441_R1. This device is designed for accurate measurement and logging of sound levels, featuring A/C frequency weighting, Fast/Slow response times, and extensive data storage capabilities. It is an essential tool for industrial, environmental, and occupational noise assessments.

2. SAFETY INFORMATION

- Always handle the device with care to prevent damage.
- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping the device or subjecting it to strong impacts.
- Do not attempt to disassemble or modify the device, as this will void the warranty and may cause damage or injury.
- Keep the device away from water and other liquids.
- Use only the provided USB cable for charging and data transfer.

3. PACKAGE CONTENTS

Verify that all items listed below are present in your package:

- 1 x Sound Level Meter (Model SLM-441_R1)
- 1 x Windproof Sponge Ball
- 1 x USB Cable (Type-C)
- 1 x English Instruction Manual



Figure 3.1: Contents of the product package, including the sound level meter, windproof sponge ball, USB cable, and instruction manual.

4. PRODUCT OVERVIEW

Familiarize yourself with the components and features of your sound level meter.



Figure 4.1: Detailed diagram of the Sound Level Meter's front and back, highlighting key components such as the microphone, LCD display, control buttons, USB-C interface, and DC output port.

Key Features:

- **Real-time Measurement:** Provides instant sound level readings.
- **A/C Frequency Weighting:** Allows selection between A-weighting (for environmental noise) and C-weighting (for sound pressure analysis of engines).
- **Data Hold Function:** Freezes the current reading on the display.
- **43,000 Data Record Function:** Stores a large volume of measurement data.
- **Fast/Slow Time Weighting:** Selectable response times for different measurement scenarios.
- **Three-color Light Alarm:** Visual alerts for configurable high/low alarm thresholds.
- **USB Power & PC Connect:** Enables charging and data transfer to a computer.
- **Auto Power Off Function:** Conserves battery life.

FEATURES



Real-time
measurement



A/C
Frequency weighting



Data hold
function



43,000 data
record function



Fast/Slow time
weighting



Tree-color
light alarm



USB power &
PC connect



Auto power off
function



Figure 4.2: Visual representation of the sound level meter's primary features.

5. SETUP AND INITIAL USE

5.1 Charging the Device

Before first use, fully charge the device. Connect the provided USB Type-C cable to the meter's Type-C interface and the other end to a USB power adapter (not included) or a computer's USB port. The charging time is approximately 1.5 hours, providing up to 8 hours of operation.

5.2 Attaching the Windproof Sponge Ball

Gently place the windproof sponge ball over the microphone at the top of the device. This helps to reduce wind noise interference during outdoor measurements.

5.3 Powering On/Off

Press and hold the **POWER/ENTER** button to turn the device on or off.

6. OPERATION

6.1 Basic Measurement

Once powered on, the device will immediately begin displaying real-time sound level readings in decibels (dB) on the LCD screen. The screen also shows maximum (max) and minimum (min) values, along with a real-time line graph of the sound fluctuations.



Figure 6.1: The Sound Level Meter displaying current sound levels and a real-time graph.

6.2 Frequency Weighting (A/C)

The device supports two frequency weighting modes:

- **A-Weighting (A):** Suitable for environmental noise detection, mimicking the human ear's response to sound.
- **C-Weighting (C):** Suitable for sound pressure analysis of engines and other mechanical noise, providing a flatter response across the frequency spectrum.

Press the **A/C** button to toggle between A and C weighting modes.



Figure 6.2: Explanation of Fast/Slow time weighting and A/C frequency weighting modes.

6.3 Time Weighting (FAST/SLOW)

The device offers two time weighting settings:

- **FAST:** Samples 8 times per second, ideal for environmental measurements with large variations in noise levels.
- **SLOW:** Samples 1 time per second, suitable for general environmental measurements where noise levels are relatively stable.

Press the **F/S** button to switch between FAST and SLOW response times.

6.4 Alarm Settings and Visualization

The device features a three-color LED alarm (green/yellow/red) and an on-device line chart to visualize real-time noise fluctuations. You can configure high/low alarm thresholds to receive immediate alerts when limits are exceeded.

- **Blue Font + Green Indicator:** Noise level does not exceed the yellow alarm value.

- **Yellow Font + Yellow Indicator:** Noise level exceeds the yellow alarm value.
- **Red Font + Red Indicator:** Noise level exceeds the red alarm value.

Refer to the device's on-screen menu (accessed via the **SET** button) to adjust alarm thresholds.



Figure 6.3: Visual indicators for alarm thresholds on the sound level meter.

6.5 Data Management and PC Connectivity

The meter can store up to 43,000 timestamped readings. You can review, delete, or download this data for in-depth analysis.

6.5.1 On-Device Data Review

Navigate through the device's menu using the directional buttons to access saved data records. The LCD screen interface allows you to view recorded values and their corresponding timestamps, along with a graph of the recorded data.

LCD SCREEN INTERFACE



Figure 6.4: The LCD screen displaying recorded data and a corresponding graph.

6.5.2 PC Connection and Software

Connect the meter to a Windows 7/10/11 PC via the USB-C port. This enables data download, real-time data sampling analysis, and the ability to print graphs and reports. The device typically functions as a mass storage device or requires specific software for full functionality. Refer to the included manual for software installation instructions.

PC CONNECTS:

Connects to a PC via USB, enabling data download, real-time data sampling analysis, and the ability to print graphs and data.

43,000 Data Record Function

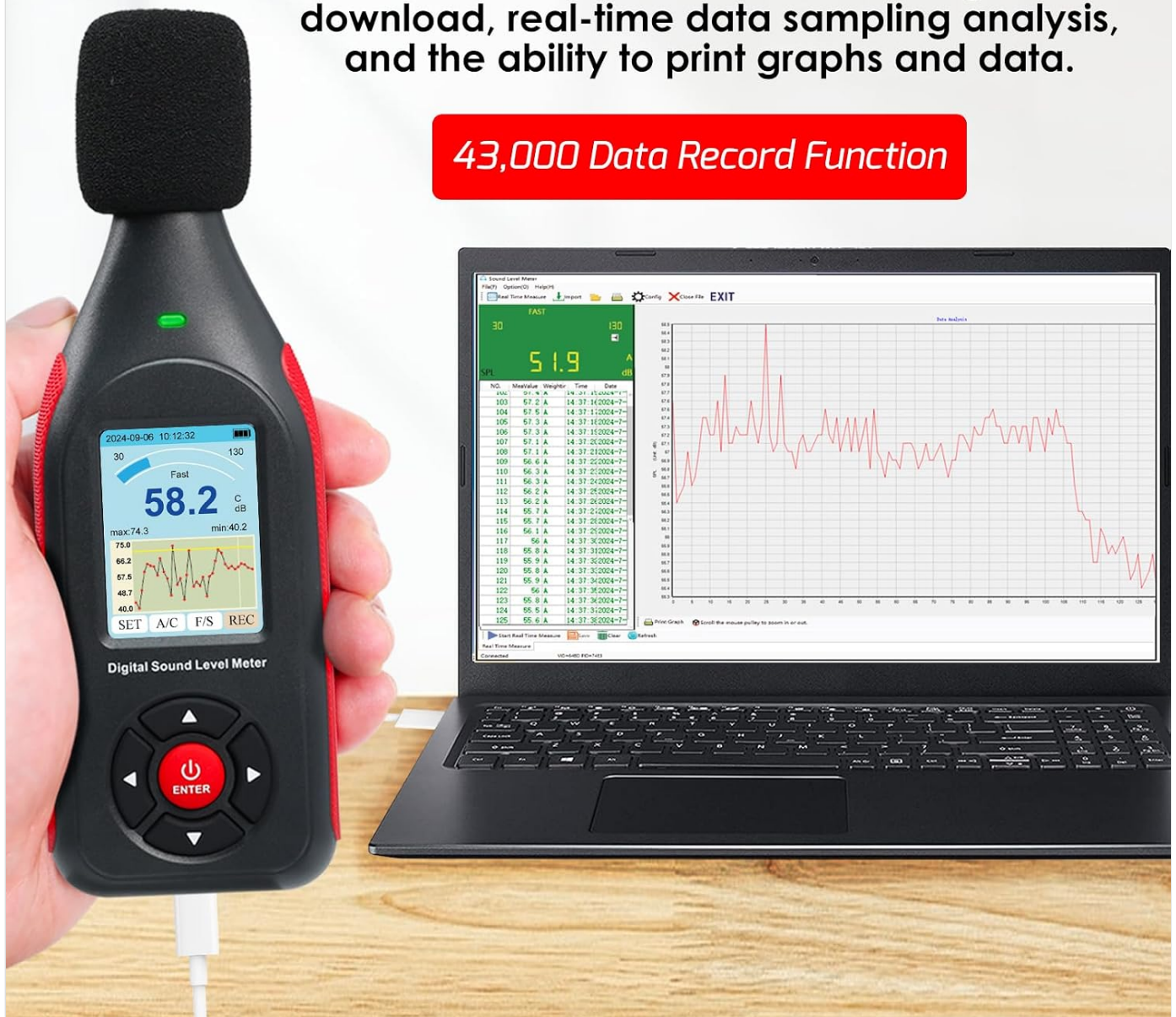


Figure 6.5: Connecting the sound level meter to a PC for data analysis and reporting.

6.6 DC Output

The device features a DC output port (3.5mm jack) that provides the noise value in voltage mode according to proportion. The DC voltage range is 300mV to 1300mV, with a DC voltage error of $\pm 5\text{mV}$ and DC impedance of 120R. The relationship between DC output voltage (V_{out}) and noise value (dB) is $V_{out} = \text{dB} \times 10$ (unit: mV). This feature is useful for integration with other data logging systems or for real-time monitoring applications.

Video 6.1: Demonstration of the Sound Level Meter's features and operation, including its display and connectivity options.

Your browser does not support the video tag.

This video provides a visual guide to the sound level meter's functionality, demonstrating how to navigate menus, view real-time data, and utilize its various features. It showcases the device's compact size and ease of use.

7. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.

- **Storage:** When not in use for extended periods, store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Battery Care:** To prolong battery life, avoid fully discharging the battery frequently. Recharge the device regularly, even if not in active use.
- **Microphone Protection:** Always use the windproof sponge ball to protect the microphone from dust and debris.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low battery.	Charge the device using the provided USB cable.
Inaccurate readings.	Microphone obstructed or damaged; incorrect weighting setting.	Ensure microphone is clear; check A/C and Fast/Slow settings. Consider calibration if issues persist.
Cannot connect to PC.	Incorrect USB cable; driver issues; software not installed.	Use the provided USB cable; install necessary drivers/software from the manufacturer's website or included media.
Display is dim or blank.	Low battery; device malfunction.	Charge the device. If problem persists, contact customer support.

9. SPECIFICATIONS

Parameter	Value
Calibration Sound Source	94dB@1KHz
Measurement Range	30~130dB (A), 35~130dB (C)
Accuracy	±1.5dB (Reference sound pressure standard, 94dB@1KHz)
Resolution	0.1dB
Frequency Weighting	A/C
Frequency Response	31.5~8500Hz
Time-weighting	FAST/SLOW
Sampling Rate	FAST - 8 times/second; SLOW - 1 times/second
Rated Current	70mA
Standby Current	5uA
Power Supply	3.7V lithium battery / 1000mAh
Charging Time	1.5h
Duration of Service	8h
Data Storage	43,000 records

Parameter	Value
Microphone	1/2-inch polarization capacitance microphone
Operating Environment	0~50°C; 10~80% RH
Dimension (excluding sponge ball)	160 x 56 x 31mm
Weight (excluding sponge ball)	approx. 114gms
DC Output Voltage Range	300mV~1300mV
DC Output Voltage Error	±5mV
DC Impedance	120R
DC and Noise Relationship	$V_{out}=dB \times 10$ (unit: mV)

10. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the contact details provided with your purchase or visit the official Gain Express website. Keep your purchase receipt as proof of purchase for any warranty claims. The manufacturer, Gain Express Holdings Ltd., is committed to providing reliable products and customer service.