REED

Model ST-8850

Sound Level Meter

Instruction Manual

www.reedinstruments.com

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For service on this or any other REED product or information on other REED products, contact REED Instruments at info@reedinstruments.com.

Safety

Read the following safety information carefully before attempting to operate or service the meter. Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.

Environment conditions

- Altitude lower than 2000 meters
- Relatively humidity ≤90%RH
- Operation Ambient 0 ~ 40°C

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Maintenance & Cleaning

- Repairs or servicing that are not covered in this manual should be performed by qualified personnel only. For service on this or any other REED product, contact REED Instruments at info@reedinstruments.com.
- Periodically wipe the case with a dry cloth. Do not use solvents or eradicator on this instrument.

Safety symbols

Meter is protected throughout by double insulation or reinforced insulation.

When servicing, use only specified replacement parts.

CE Complies with EMC

Features

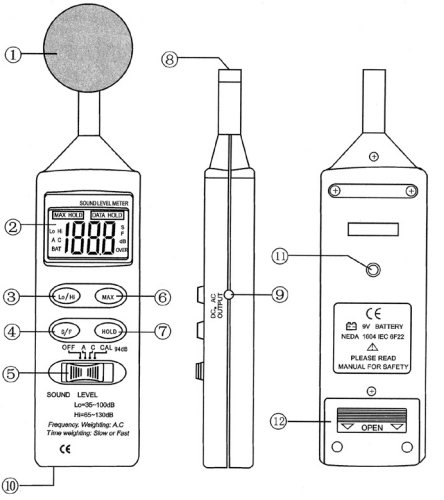
This Sound Level Meter has been designed to meet the measurement requirements of safety engineers, health, industrial safety offices and sound quality control in various environments.

- This unit conforms to the IEC651 type 2, ANSI S1.4 type 2 for Sound Level Meters.
- Ranges from 30dB to 130dB at frequencies between 31.5Hz and 8 kHz.
- Display with 0.1dB steps on a 4-digits LCD.
- With two equivalent weighted sound pressure levels, A and C.
- Both AC and DC signal output is available from both standard 3.5mm coaxial socket suitable for a frequency analyzer, level recorder, FFT analyzer, graphic recorder, etc.

Specifications

Standard applied:	IEC651 type 2, ANSI S1.4 type 2
Frequency range:	31.5Hz~8kHz
Measuring level range:	30~130dB
Frequency weighting:	A/C
Microphone:	1/2 inch electret condenser microphone
Calibration:	Electrical calibration with the internal oscillator (1kHz sine wave)
Display:	LCD
Digital display:	4 digits
Resolution:	0.1dB
Display Up data:	0.5 sec.
Time weighting:	FAST (125ms), SLOW (1 sec.)
Level ranges:	Lo: 35-100dB, Hi: 65-130dB
Accuracy:	+ 1.5dB (under reference conditions)
Dynamic range:	65dB
Alarm function:	"OVER" is show when input is out of range
Maximum hold:	Hold readings the Maximum Value, with decay < 1dB/3minutes.
AC output:	0.65 Vrms at FS (full scale), Output impedance: Approx. 600Ω (FS: means the upper limit of each level range.)
DC output:	10mV/dB, output impedance approx. 100Ω
Power supply:	One 9V battery, 006P or IEC 6F22 or NEDA 1604.
Power life:	About 50 hrs (alkaline Battery)
Operation temperature:	0 to 40°C (32 to 104°F)
Operation humidity:	10 to 90% RH
Storage temperature:	-10 to 60°C (14 to 140°F)
Storage humidity:	10 to 75% RH
Dimensions:	245 L x 64 W x 31 h mm
Weight:	255g (including battery)
Includes:	9V battery, carrying case and instruction manual
Optional Accessory:	Tripod (REED Model BS-6)

Instrument & Function Description

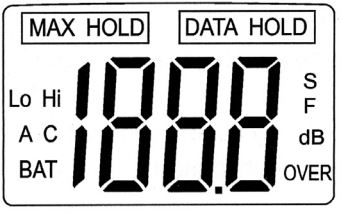


1. Windscreen

If you operate the unit in an environment with a wind speed over 10m/sec, please put protective accessories (the windscreen provided) in front of the microphone.

2. Display

SYMBOL	FUNCTION
LCD	4 digits
MAX	Maximum Value hold
OVER	Over range
F	Fast response
S	Slow response
A	A-Weighting
C	C-Weighting
Lo	Low Range (35~100dB)
Hi	High Range (65~130dB)
BAT	Low-Battery



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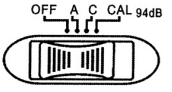
3. Level range select button (Lo/Hi)

Lo: 35~100dB; **Hi**: 65~130dB
When "OVER" is indicated, the ranges switch to another range for measurement.

4. Time weighting select button (S/F)

F (fast response): for normal measurements (fast varying noise)
S (slow response): for checking average level of fluctuating noise

5. Power and Function Switch



Turn power ON/OFF and select
A/C weighting & calibration function
A: A – Weighting. For general sound level measurements.
C: C – Weighting. For checking the low- frequency content of noise.
If the C-Weighted level is much higher than the A-Weighted level, then there is a large amount of low-frequency noise.
CAL 94dB: Calibration using the internal oscillator

6. MAX Hold button (MAX)

The max. Hold position is used to measure the maximum level of sounds. The maximum measured level is up dated continuously. Press once again the button, will release the hold and allow a further measurement.
(Maximum Hold: Decay < 15 digits/3min)

7. Data Hold button (HOLD)

The hold function freezes the reading in the display. Press the HOLD button momentarily to activate or to exit the HOLD function

8. Microphone

1/2 inch Electret Condenser microphone

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9. DC. AC Output jack

Standard 3.5mm 3 pole coaxial output socket. Serves to supply AC signals and log-converted dc signals to external equipment.

OUTPUTS:

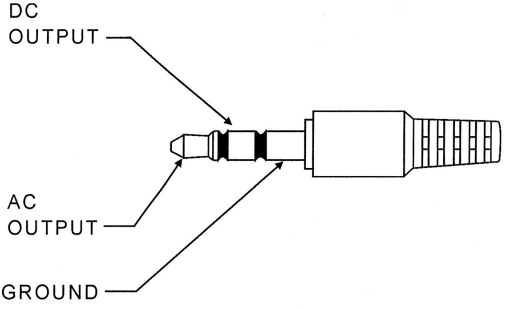
Two outputs can be accessed through a 3.5mm stereo phone plug refer.

DC OUTPUT:

Logarithmic signal: 10mV/dB
Impedance: ≤100Ω

AC OUTPUT:

Approx. 0.65Vrms corresponding to each range step.
Impedance: ≈100Ω



10. Calibration Potentiometer

The calibration potentiometer can be adjusted clockwise or counterclockwise to standard 94.0dB.

11. Tripod mounting screw

12. Battery Cover

Operating Instructions

Calibration Procedures

Using a standard Acoustic Calibrator (94dB, 1kHz Sine wave)

1. Make the following buttons and function switch settings:

   Display: dB, A, Lo, F

   Function: A-Weighting

   Response Time: FAST

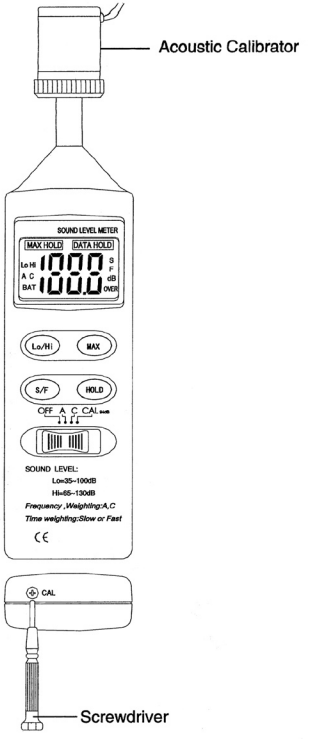
   Level range: 35 to 100dB

   Measurement mode: MAX Hold and Data Hold Mode function disable.

2. Insert the microphone housing carefully into the insertion hole of the calibrator.

3. Turn on the switch of calibrator (94dB @ 1kHz) and adjust the CAL potentiometer of the unit. The level display will indicate the desired level.

   This product is well calibrated when manufactured. We recommend it be recalibrated every year.



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Operating Precautions

1. When wind is blowing across the microphone, this will bring additional extraneous noise. When using the instrument in the presence of wind, use the windscreen (included) to not pick up undesirable signals and provide a more accurate measurement.
2. For the most accurate measurement, use an extension cable to separate the microphone from the main body to eliminate unexpected sound reflections.
3. Calibrate the instrument before operation if the instrument was not in use for a long time or operated at bad environment (see page 8).
4. Do not store or operate the instrument in high temperature or high humidity environments.
5. Keep the microphone dry and avoid severe vibrations.
6. When the meter is not in use, take the battery out and keep the instrument in a low humidity environment.

Measurement Procedures

1. Open battery cover on the back of the meter and install a 9-volt battery in the battery compartment.
2. Turn the power on and select the desired response time and weighting. If the sound source consists of short bursts or if it's only catching sound peaks, set the response to FAST. To measure the average sound, use the SLOW setting. Select A-weighting for general noise sound level and C-weighting for measuring sound level of acoustic material.
3. Select your desired Level
4. Hold the instrument comfortably in your hand or install it on a tripod (REED Model BS-6) and point the microphone at the noise source, the sound pressure level will now be displayed.
5. When MAX (maximum hold) mode is chosen, the instrument captures and holds the maximum noise level for a long period using any of the time weightings and ranges.
6. When HOLD (data hold) mode is chosen, the hold function freezes the reading on the display. Press the HOLD button momentarily to activate or to exit the HOLD function.
7. Turn off the meter. When the meter is not in use, take the battery out and keep the instrument in a low humidity environment.

Battery Replacement

When the battery voltage drops below the operating voltage, the “BAT” symbol will appear in the display. This indicates that the battery needs to replaced with a new one.

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Notes