

Graphic Display Sound Meter

850015 Instruction Manual

SPER
SCIENTIFIC

Environmental Measurement Instruments

Graphic Display Sound Meter 850015

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INTRODUCTION

This Sper Scientific Graphic Display Sound Level Meter (Model 850015) provides fast and accurate measurement in a wide range of environments. Applications include safety engineering, health environments, industrial settings, and office engineering.

The meter features both a numerical digital display and 30-segment bar graph for accuracy. AC and DC signal outputs are available through the standard 3.5 mm coaxial socket, allowing use of a frequency analyzer, level recorder, FFT analyzer, graphic recorder, and more.

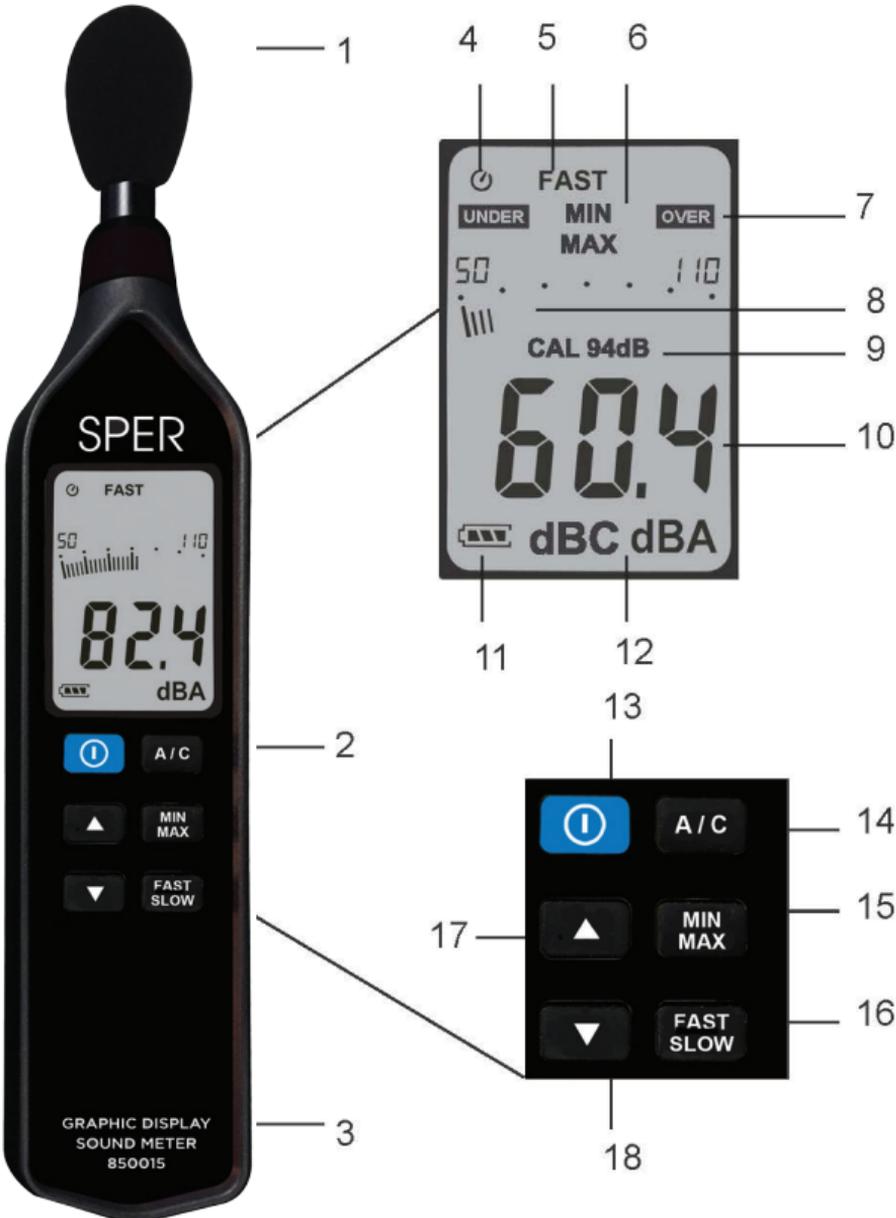
FEATURES

- Analog and digital displays
- Minimum and maximum readings
- Peak hold
- Frequency weighting
- Level range control
- Visual alarm functions
- AC and DC output coaxial socket
- Windscreen
- Tripod mounting screw
- Low battery indicator
- Automatic shutoff

MATERIALS SUPPLIED

- Meter
- One 9V Alkaline Battery
- Instruction Manual
- Windscreen for Microphone
- Hard Carrying Case

FRONT PANEL DESCRIPTION & LCD DISPLAY



1. Microphone & Windscreen
2. AC/DC Output Socket
3. Battery Cover (on back, not pictured)
4. Auto Power Off indicator
5. FAST/SLOW response indicator
6. MIN/MAX Value hold indicator
7. UNDER/OVER range indicator
8. Range indicator
9. Calibration Mode indicator
10. Reading indicator
11. Battery capacity indicator
12. A/C Weighting indicator
13. Power Button
14. Frequency weighting button
15. Min/Max button
16. Time weighting button
17. Increase level range button
18. Decrease level range button

CALIBRATION

The meter will arrive properly calibrated and ready for use, and should keep its calibration for a significant period of time. The meter should be recalibrated if:

- If the meter has not been used for a long time.
- If the meter has been operated in an extreme environment.

Note...

You will need a standard acoustic calibrator (94 dB, 1KHz Sine Wave) to recalibrate the meter.

1. With the meter turned off, press and hold down **MIN/MAX**.
2. Insert the microphone carefully into the calibrator and set to 94 dB.
3. While continuing to hold **MIN/MAX**, press **POWER** to turn the meter on. "CAL 94dB" will flash.
4. Press ▲ or ▼ to adjust the reading on the meter until the display shows 94 dB.
5. When the displayed reading correctly reflects the calibration point, press **MIN/MAX** to finish.
6. To exit the calibration process at any point, press **POWER** to cancel the procedure. The meter will return to Normal Mode.

MEASUREMENT PROCEDURES

The meter may be held in the hand during measurement or mounted using the tripod mounting screw.

Note...

Wind blowing across the microphone may affect the readings. Mount the windscreen on the microphone whenever the meter is used in a windy environment.

1. Press **POWER** to turn the meter on.
2. Press **FAST/SLOW** to select the response time.
 - a. Select **FAST** to measure short bursts of sound.
 - b. Select **SLOW** to measure average sound levels.
3. Press **A/C** to select the weighting.
 - a. Select A weighting for general sound level measurements. “dBA” will display.
 - b. Select C weighting for measuring the sound level of acoustic material and checking the low-frequency content of sound. “dBC” will display.

Note...

If the C-weighted sound level is much higher than the A-weighted level, a large amount of low-frequency sound is present.

4. Press ▲ or ▼ to adjust the level range as needed.
 - a. Press ▲ to increase the level range from low to medium to high.
 - b. Press ▼ to decrease the level range from high to medium to low.

Note...

During measurement, visual alarms will alert you if the input is out of range. “OVER” indicates that the sound input is above the upper limit of the range. “UNDER” indicates that the sound input is below the lower limit of the range.

5. Point the microphone in the direction of the sound to be measured. The reading will display.
6. Press and hold **POWER** for 2 seconds to turn the meter **off** when measurement is complete.

Peak Hold

Note...

Select the appropriate sound level range before entering the Peak Hold and Max/Min recording modes.

1. Press **MIN/MAX** to display “MAX” along with the maximum reading. When the maximum sound level is exceeded the new maximum reading will be displayed.
2. Press **MIN/MAX** again to display “MIN” along with the minimum reading. The display will be updated when a lower sound level is reached.

Note...

The analog bar graph will continue to display the current sound levels when the meter is in Peak Hold mode.

Max/Min recording mode

3. Press **MIN/MAX** for a third time and “MIN/MAX” flashes on the display. The meter now begins recording minimum and maximum values.
4. Press **MIN/MAX** again and “MAX” displays along with the maximum value recorded since step 3 above.
5. Press **MIN/MAX** again and “MIN” displays along with the minimum recorded value.
6. Press and hold **MIN/MAX** for 2 seconds to clear the Minimum/Maximum readings. The meter will return to Normal Mode.

Note...

The meter will exit Minimum/Maximum Recording Mode and clear the stored readings if the weighting or level range is changed.

Automatic Shutoff

The meter defaults to automatic shutoff each time it is turned on. If there is no key operation for 30 minutes, the instrument will power down. To disable automatic shutoff:

1. With the meter turned off, press and hold down **FAST/SLOW**.
2. While continuing to hold **FAST/SLOW**, press **POWER** to turn the meter on. Automatic shutoff will be deactivated and the corresponding icon will disappear.

MAINTENANCE AND STORAGE

- Wipe the case with a dry cloth.
- Do not use abrasives or solvents on the meter.
- Keep the microphone dry.
- Avoid exposing the instrument to excessive vibration.
- Remove the battery when the meter is not in use.
- Do not store the meter in a high temperature, high-humidity environment. The instrument should be stored in a low-humidity setting.

BATTERY INSTALLATION & REPLACEMENT

1. The meter is powered by one 9V battery. Battery life for a 9V alkaline battery is approximately 60 hours.
2. An icon in the lower-left corner of the LCD indicates the level of battery power available

To replace the battery:

1. Press and hold **POWER** for 2 seconds to turn the meter off.
2. Remove the battery cover from the back of the meter.
3. Carefully pull out the old battery just until it is free of the battery compartment. Unsnap it from the connectors, taking care not to yank the connecting wires.
4. Insert a new 9V battery, snapping it into the connector to ensure correct polarity. Replace the battery in the battery compartment.
5. Replace the battery cover.

SPECIFICATIONS

Digital Display	Type	LCD, 4 digits
	Resolution	0.1 dB
	Display Update Rate	0.5 seconds
Analog Bar Graph Display	Type	30-segment bar graph
	Resolution	2 dB
	Display Update Rate	100 mS
Standard	Meets IEC 61672:2013 Class 2 frequency and time weighting specifications.	
Frequency Range	20 Hz to 8 KHz	
Measuring Level Range	32 to 130 dB	
Level Ranges	Low	30 to 90 dB
	Medium	50 to 110 dB
	High	70 to 130 dB
Dynamic Range	60 dB	
Frequency Weighting	A / C	

Time Weighting	Fast, Slow
Accuracy	± 1.4 dB under reference conditions
AC Output	1 Vrms at full scale (the upper limit of each level range)
DC Output	10 mV / dB
Operating Altitude	≤ 2000 meters
Operating Temp.	0 to 40 °C (32 to 104 °F)
Operating RH	10% to 90% RH
Storage Temp.	-10 to 60 °C (14 to 140 °F)
Storage RH	10% to 75% RH
Power Supply	(1) 9V battery
Microphone	0.5 inch electret condenser microphone
Dimensions	10" \times 2" \times $\frac{7}{8}$ " (25 \times 5 \times 2 cm)
Weight	6.5 oz (184 g)

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) years** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.
8281 E. Evans Rd., Suite 103
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.

