

BOGEN®

SPLM

DIGITAL SOUND PRESSURE
LEVEL METER



INSTRUCTION MANUAL



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1. DESCRIPTION

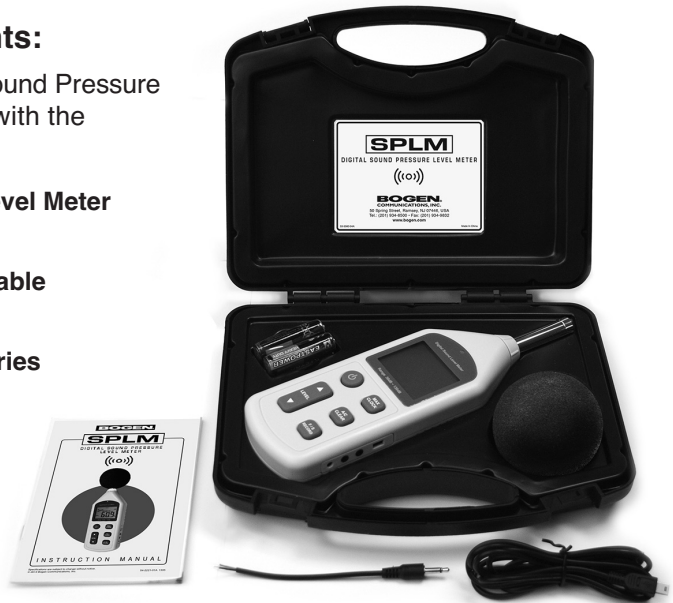
Introduction:

The SPLM has been designed to meet the measurement requirements of audio engineers, audio installers, noise quality control, health prevention in various environments and all other noise measurement applications.

Package Contents:

The Bogen Digital Sound Pressure Level Meter comes with the following items:

- Sound Pressure Level Meter
- Windscreen
- USB Connecting Cable
- Signal Output Wire
- 1.5V Alkaline Batteries
- Carrying Case
- Instruction Manual

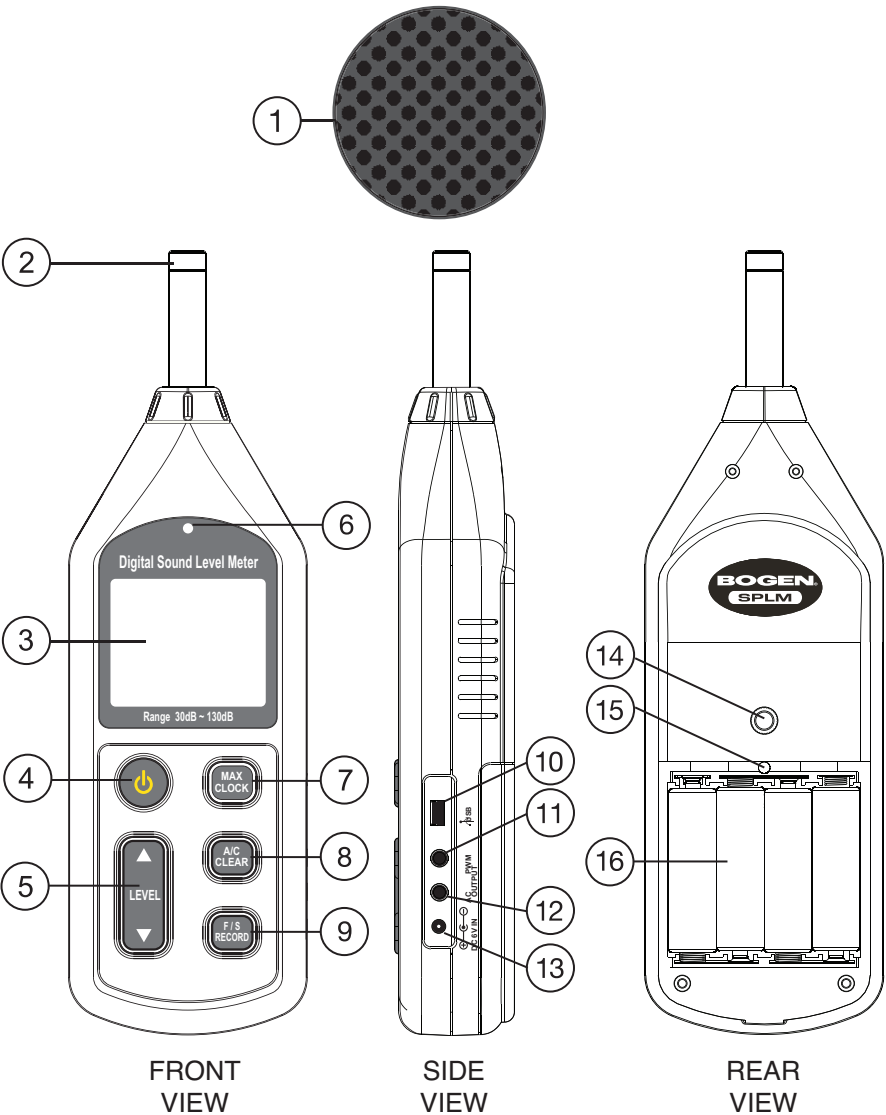


Product Highlights:








The SPLM was designed according to IEC 651 TYPE2 and ANSI S1.4 TYPE2 standards.

- Accuracy up to +/- 1.5 dB
- Measurement range is 30 to 130 dB
- Fast/Slow Time Weighting Selection
- Automatic Backlight
- Maximum Value Hold Function
- 10-Minute Auto Power Off
- A/C Frequency Weighting Selection
- AC and PWM Signal Output
- Calendar Function
- Data Record Function
- USB Connection to PC, provides data record downloading, real-time data sampling analysis, and printing graph and data functions

Diagram of the SPLM Unit

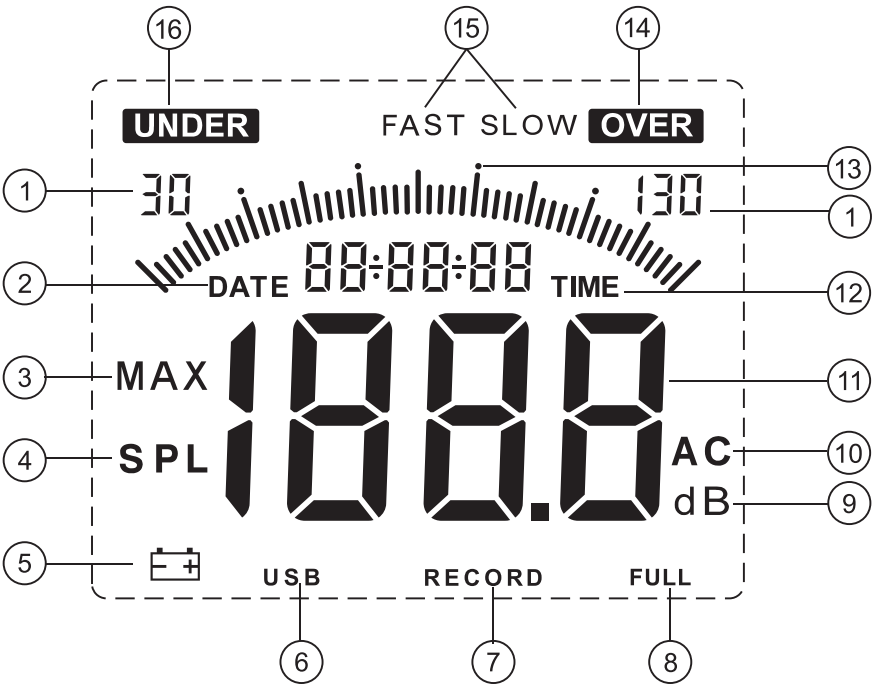


Features of the SPLM Unit

1. **Windscreen**- For use outdoors, prevents wind noise from affecting the SPLM reading.
2. **Condenser Microphone**
3. **LCD Display Screen**
4.  **Power Button** - Turns the SPLM Unit ON or OFF.
5.  **Level Button** - Level range selection button & setting key.
6. **Light Sensor**
7.  **MAX CLOCK Button** - Maximum value hold and date/time setting key.
8.  **A/C CLEAR Button** - Frequency weighting selection and recorded data deletion key. Press down until CLA appears on display. This will delete all the recorded data.
A: Weighting for general sound level measurements.
C: Weighting includes the low-frequency content of noise.
9.  **F/S RECORD Button** - Time weighting selection and data recording key. Press down until RECORD appears on display. This will enter data recording mode. Press again to exit this mode.
FAST (F): Displays instantaneous dB value.
SLOW (S): Displays average dB value (1 second).
10.  **USB** - USB jack.
11. **PWM** - Pulse Width Modulation output jack.
12. **AC OUT** - AC analog output jack.
13.  **DC 6V IN** - 6V DC input jack.
14. **Tripod Fixed Screw Mount**
15. **Calibration Potentiometer**
16. **Battery Compartment**
(with cover removed)



LCD Diagram & Features



- 1. **Level Range Setting**
- 2. **DATE** - Calendar Date (year, month, day)
- 3. **MAX** - Maximum SPL Value
- 4. **SPL** - Sound Pressure Level
- 5. **Low Battery Indicator**
- 6. **USB** - USB Connected
- 7. **RECORD** - Data Recording
- 8. **FULL** - Data Recording Full
- 9. **dB** - Measurement Unit

- 10. **A/C** - Indicates Frequency Weighting, A or C
- 11. **Reading Display**
- 12. **TIME** - Calendar Clock (hour, minute, second)
- 13. **Bar Graph**
- 14. **OVER** Signals that the reading is over the maximum range.
- 15. **FAST / SLOW** - Indicates Time Weighting, Fast or Slow
- 16. **UNDER** Signals that the reading is under the minimum range.

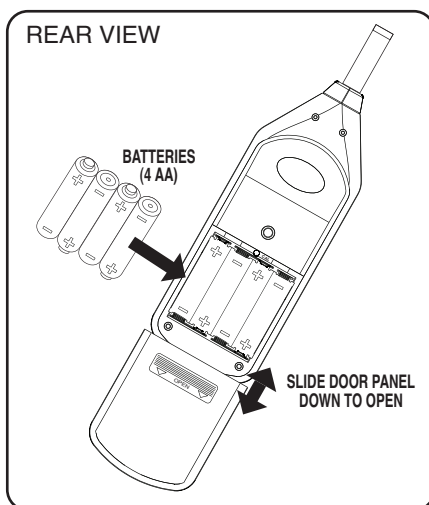
Specifications

Measurement Range:	30 to 130 dB A, 30 to 130 dB C
Accuracy:	+/- 1.5 dB (reference sound pressure standard, 94 dB @ 1 kHz)
Frequency Response:	31.5 Hz to 8.5 kHz
Resolution:	0.1 dB
Measuring Level Ranges:	30 to 80, 50 to 100, 60 to 110, 80 to 130, 30 to 130
Dynamic Range:	50 dB/100 dB
Overload Indication:	OVER / UNDER
Frequency Weighting:	A and C
Digital Display:	4 Digits
Analog Bar Graph:	1 dB / bar (2 dB/bar for 30 to 130 range)
Sampling Rate:	0.05 seconds
AC Signal Output:	4 VRMS @ full bar graph, output impedance 600 ohms (3.5 mm connector)
PWM Signal Output:	$\text{Duty Cycle} = \frac{0.01 \times \text{dB Value}}{3.3} \times 100\% \text{ (3.5 mm connector)}$
Calendar Accuracy:	+/- 30 seconds per day
Data Storage Quantity:	4700 Points
Auto Power Off:	10 minutes of no activity
Microphone Type:	1/2-inch Condenser
Power Supply:	6V external or 4 AA alkaline battery
Dimensions:	2-3/4" W x 9-3/8" H x 1-3/8" D
Product Weight:	11 ounces (with batteries)
Battery Life:	10 hours continuous use (alkaline batteries)

2. OPERATING INSTRUCTIONS

Battery Installation:

1. Remove the battery door and insert 4 AA alkaline batteries into the battery compartment.
2. Replace the battery door.
3. When the battery voltage drops below the operating voltage, a Low Battery Indicator icon appears on the display. Replace the batteries in the SPLM with new batteries.



Calibration:

Please use typical 94 dB @ 1 kHz standard calibrator.

1. Slide open Battery Door to access the Calibration Pot.
2. Setting on sound level meter:
A = Frequency weighting;
FAST = Time Weighting;
Level range is 60 dB to 110 dB.
3. Insert SPLM into calibrator.
4. Adjust Calibration Pot until the display shows appropriate level
(See Figure 1).

NOTE: The SPLM is calibrated prior to shipment. The recommended calibration cycle is one year.

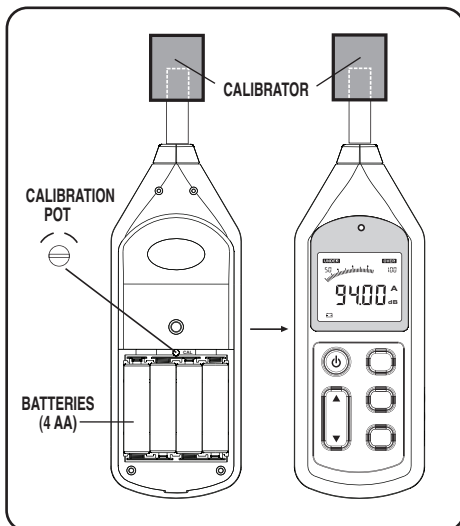


Figure 1

Calendar Setting:

Setting Date and Clock

Start with the SPLM Unit **OFF**.

1. While holding down the **MAX CLOCK** Button, turn the unit **ON** with the **POWER** button.
2. When the LCD screen flashes the first digit of the calendar year (see Figure 2), release the **MAX CLOCK** button. Press the **LEVEL UP** or **DOWN** button to adjust the date. After adjusting the first digit, press the **MAX CLOCK** button to adjust the next digit. Press **MAX CLOCK** to proceed through the date digits. To adjust the time, continue to follow these steps.
3. When complete, press the **MAX CLOCK** button once again to exit the calendar setting mode.

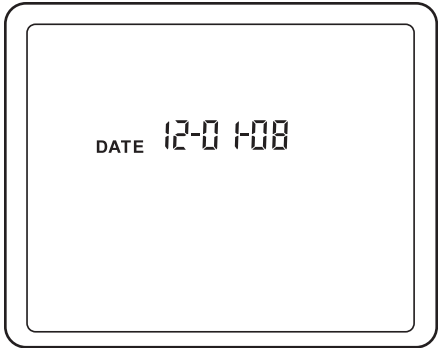
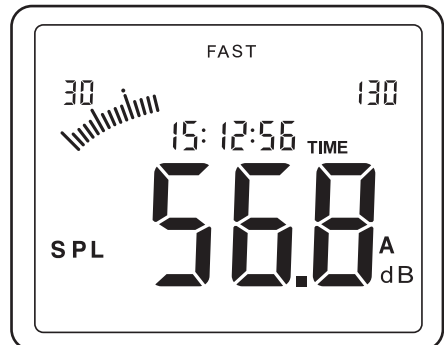
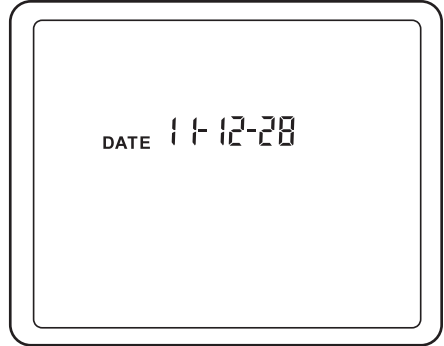


Figure 2

Level Range Selection:

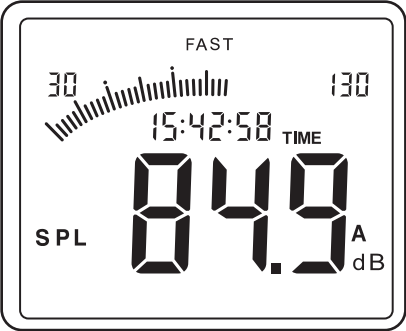
1. Press the **POWER** button to turn on the SPLM. The date will be displayed on the LCD screen for 2 seconds.
2. After 3 seconds, the screen enters the default measurement mode.



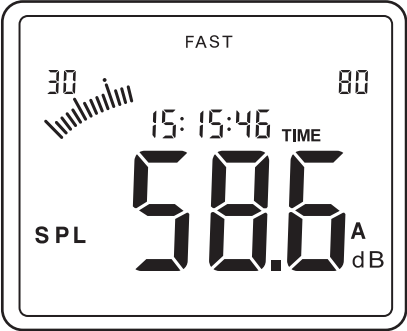
Level Range Selection (cont'd):

3. Press the **LEVEL UP** or **DOWN** button to select your desired measuring range: 30 to 130 (**default**), 30 to 80, 50 to 100, 60 to 110, or 80 to 130. The LCD screen displays will appear as shown here:

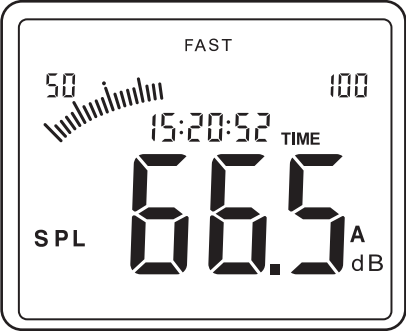
30 – 130 (default)



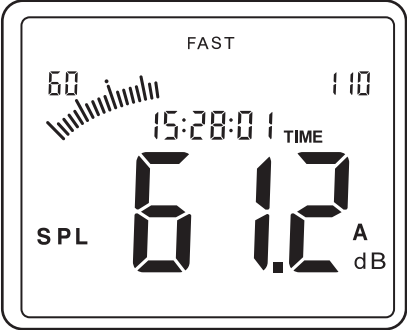
30 – 80



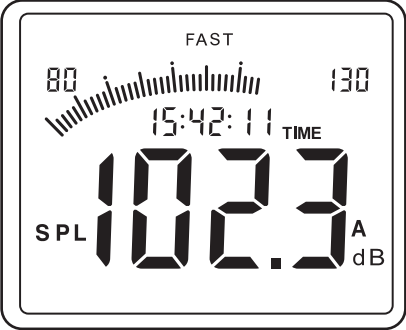
50 – 100



60 – 110

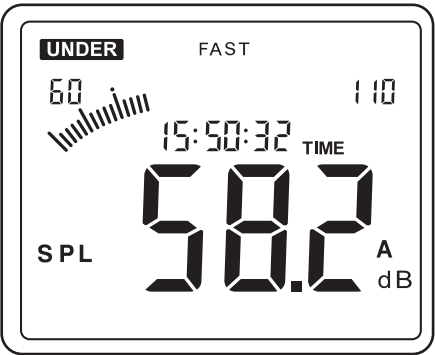


80 – 130

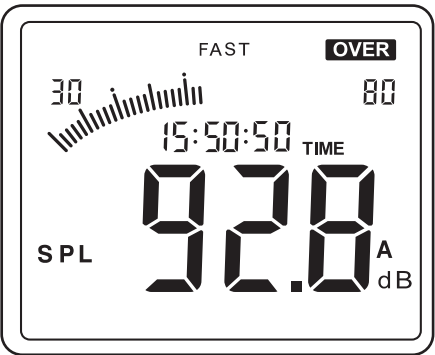


Level Range Selection (cont'd):

4. If the measuring range is higher than the actual SPL level, the LCD screen will display the **UNDER** icon. (For example, if the Level set is 60 to 110 but the actual sound level is lower than 60 dB.) Press the **LEVEL DOWN** button to lower the range until the **UNDER** icon disappears:

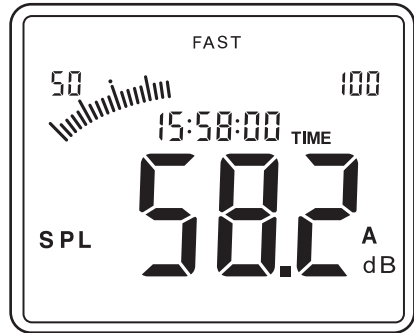


5. If the measuring range is lower than the actual SPL level, the LCD screen will display the **OVER** icon. (For example, if the Level set is 30 to 80 but the actual sound level is higher than 80 dB.) Press the **LEVEL UP** button to raise the range until the **OVER** icon disappears:



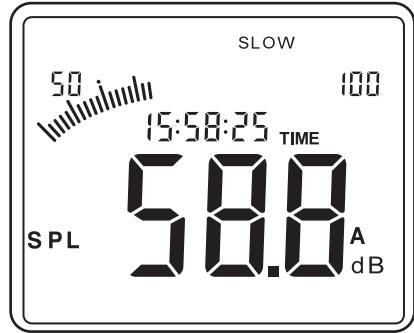
Time Weighting Selection:

1. The default time weighting is **FAST** and the LCD screen display is:



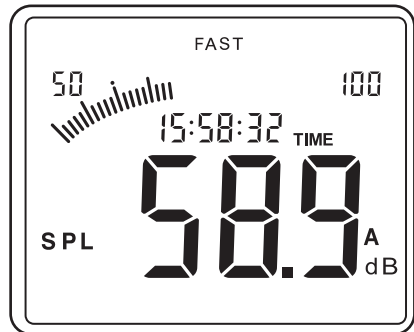
2. Press the **F/S RECORD** button to **SLOW**. The LCD screen display changes to:

NOTE: Selecting SLOW will provide a 1 second averaged reading.



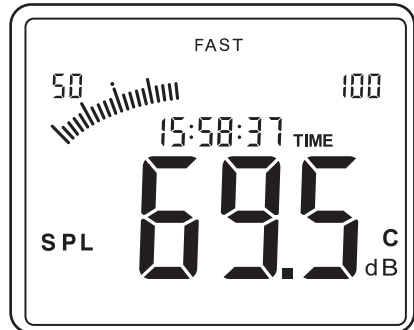
Frequency Weighting Selection:

1. The default frequency weighting is **A** and the LCD screen display is:



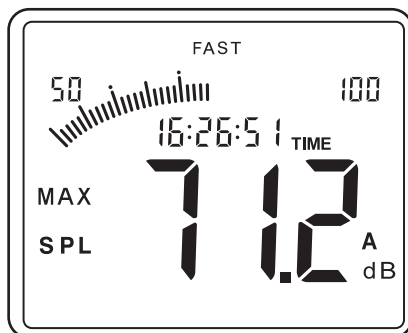
2. Press the **A/C CLEAR** button to change the frequency weighting to **C**. The LCD display changes to:

A Weighting is used for general sound level measurements. C Weighting includes the low-frequency content of noise.



MAX Value Measurement:

1. During the measurement process, press the **MAX CLOCK** button to hold the maximum reading. The LCD displays as follows:
2. Press the **MAX CLOCK** button again to exit the maximum value measurement and return to the normal measurement mode.



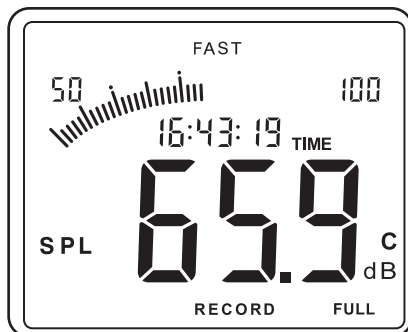
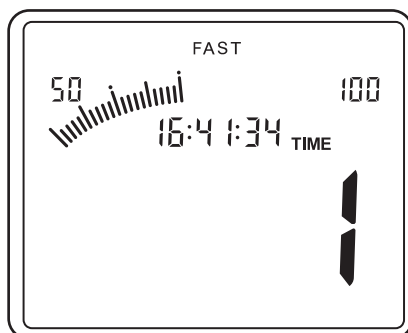
Data Record:

1. Press and hold the **F/S RECORD** button until the Record interval is displayed. Press **LEVEL UP** or **DOWN** to adjust the record interval (in secs).

NOTE: The Maximum record interval is 250 seconds.

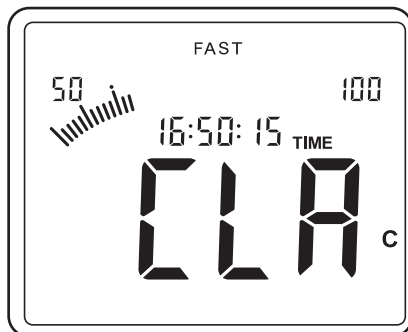
2. Press the **F/S RECORD** to enter data storage mode. Data will be logged on the set interval. The memory capacity is 4700 points. After recording 4700 points, the LCD display will indicate **FULL**. If data record is completed or full, press the **F/S RECORD** button again to exit the record mode. Then the flashing **RECORD** symbol will disappear.

NOTE: To review data, a PC with USB connection & SoundLab software is required.



Data Clear:

1. Press and hold the **A/C CLEAR** button until the letters **CLA** appear on the screen. Recorded data will be deleted and the display will return to normal.

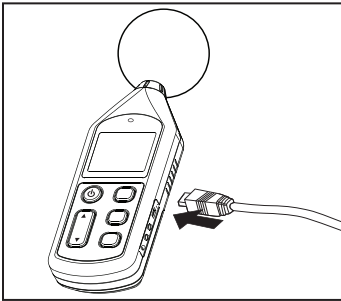


PC Connection

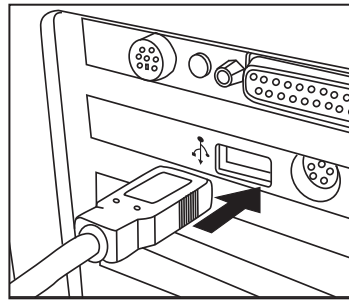
Minimum requirements for connection with a PC:

- CPU: Pentium 600 MHz or higher
- One USB interface port
- Resolution of 800 x 600 (True Color)
- 8 MB available memory
- 50 MB available disk memory
- Operating system: Microsoft Windows XP/ Vista / Windows7

1. Insert one end of the USB cable into the USB jack on the side of the SPLM.



2. Plug the other end of the USB cable into the USB interface port on the PC.



NOTE: Once the connection is made, a USB icon appears on the LCD of the SPLM indicating a successful connection. If the icon does not appear, the connection is not complete.

When connected to the PC, the PC supplies power to the SPLM (so the AA batteries are not necessary and will not be used if in the unit when connected to the PC). When the connection to the PC is ended, the SPLM will turn off automatically as the power will no longer be supplied if no batteries are in the SPLM.

Installing SoundLab Software

Visit the Bogen website (www.bogen.com) to download the current version of the SoundLab Software. Click the **Setup.exe** program to enter the installation contact interface.



3. IMPORTANT UNIT INFORMATION

1. Do not store or use the SPLM in the following conditions:

- Near rain, water, or dust filled environments
- Air with high salt or sulfur content
- Air with other gases or chemical materials
- High temperature or direct sunlight

2. Do not impact the SPLM directly.

3. Do not use the SPLM in humid conditions.

Limited Warranty; Exclusion of Certain Damages

The Bogen **SPLM Digital Sound Pressure Level Meter** is warranted to be free from defects in material and workmanship for one (1) year from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the applicable warranty period, will be repaired or replaced by Bogen, at Bogen's option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. Repaired or replacement product will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW. Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. **IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES.** Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by the Bogen Factory Service Department – same address as above or call 201-934-8500. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

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