

# eS440A Sound Level Meter

## User Manual

### **Features:**

- Sound Level Range: 30 to 130 dB (Auto Ranging)
- Frequency weighting: A/C
- Fast/Slow time weighting selection
- Max Hold function
- High accuracy
- Bar graph display
- AC/DC analog outputs
- White Backlight
- Over-range / Under-range indicator
- Time and date
- Auto-off feature
- Low Battery Alert
- Tripod Mount (Tripod not included)

### **Important Notes:**

Wind blowing across the microphone can cause additional extraneous noise. When using the instrument in the presence of wind please cover the microphone with the supplied foam ball.

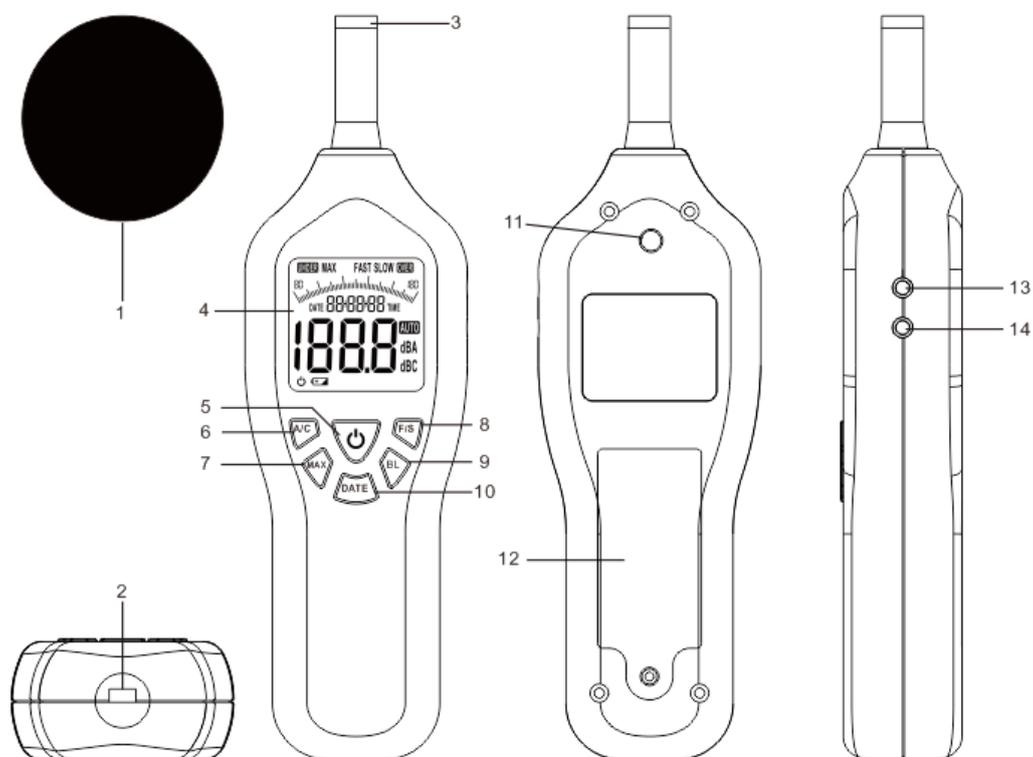
Do not store or operate the instrument at high temperatures or in a high humidity environment.

Keep the microphone dry and avoid severe vibrations.

If the meter will be out of use for a prolonged period remove the batteries.

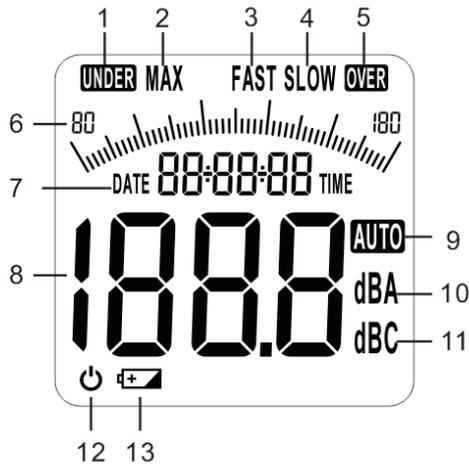
Calibration is recommended before operation if the instrument has been out of use for an extended duration or has been stored in extreme conditions (i.e. extreme heat, moisture, vibration, etc.)

## Product Description:



1. Foam ball microphone cover (mandatory for outdoor use to prevent wind noise from affecting the measurement)
2. USB socket (for optional external power adapter)
3. Condenser microphone
4. LCD display with backlight
5. Power on/off button
6. A/C frequency weighting selection button
7. Max button
8. FAST/SLOW button
9. Backlight button
10. Time/Date button
11. Tripod mounting thread
12. Battery cover
13. AC output jack (for analog output)
14. DC output jack (for analog output)

## LCD display



1. **UNDER:** Under-range alert symbol, will be displayed if the reading is below the lowest detectable sound level.
2. **MAX:** When in this mode only the highest sound level reading will be displayed.
3. **FAST:** Fast time weighting (refer to response speed)
4. **SLOW:** Slow time weighting (refer to response speed)
5. **OVER:** Over-range alert symbol, will be displayed if the reading is above the maximum measurable sound level.
6. **Bar Graph:** Displays sound levels as an easy to track bar graph in addition to the digital display (see 8).
7. **Date and Time Display** (displays current date and time)
8. **Digital Sound Level Display**
9. **AUTO:** Permanently displayed to indicate the meter is auto ranging
10. **dBA:** A-weighted decibels
11. **dBC:** C-weighted decibels
12.  Power symbol (Auto-shutdown disabled)
13.  Low battery warning symbol

## **Operation:**

### **1. Turning the Sound Level Meter On and Off**

Press the **Power button** to turn the meter on. Press it again to turn it off.

After 5 minutes without any operation the meter will automatically power off. To disable the Auto-Power-Off hold the **F/S button** down while turning the unit on, then let go of the **F/S button**. You will see the Power Symbol appear on the LCD, indicating that the auto-power-off feature is disabled.

### **2. A/C Frequency Weighting Selection**

Press the **A/C button** to select frequency weighting A or C (your selection will be displayed to the right of the sound level value as **dB<sub>A</sub>** or **dB<sub>C</sub>**). When you turn the meter on it will be in A-weighting mode.

**A-Weighting** causes the meter to replicate the frequency filtering process of the human ear. In A-weighting mode, the sound level meter is less sensitive to very high and very low frequencies. Applications include environmental measurements, law enforcement and workplace design.

**C-Weighting** is suitable for flat response measurements with no attenuation of amplitude over the frequency spectrum. Applications include the sound level analysis of machinery and engines.

### **3. MAX Value Measurement Function**

When measuring sound levels press the **MAX button** to capture the maximum sound level value. The reading will remain unchanged until a higher reading is detected. Note that the bar graph will continue to display the current reading. Press the **MAX button** again to exit this mode.

### **4. FAST/SLOW Response Speed Function**

When you turn the meter on it will be in fast response mode. Press the **F/S button** to toggle between **Fast (500ms per reading)** and **Slow mode (1sec per reading)**.

### **5. Backlight**

Press the **Backlight button** to turn the backlight on or off.

### **6. Date and Time**

Press the **Date and Time button** to switch between date and time display.

**To Set Date and Time:** Start by turning the meter off. Hold down the **A/C button**, then **briefly** press the **Power button** and **release both Power and A/C buttons at about the same time**. This

will cause the meter to enter date and time setup mode. Only the time will appear on the display and the first digit will flash. Use the **A/C button** (left) and **F/S button** (right) to choose the digit to set. Use the **Max button** (-) and **Backlight button** (+) to adjust the value. You can set both time and date this way. When done, press the **Time button** to store the time and date you have selected.

### **Battery Replacement:**

If the meter does not power on properly or the low battery icon  appears on the LCD display, replace the batteries as soon as possible. Use a screwdriver to unscrew the battery compartment cover on the back of the unit and insert four new 1.5V AA batteries. Make sure the polarity is correct (match the positive and negative terminals according to the diagram inside the battery compartment.) Reinstall the battery cover.

Please make sure to properly recycle the old batteries in an environmentally friendly manner.

### **External Power:**

The unit can be powered with a USB cable (not included), connected to a standard USB power adapter or port.

### **Tripod Mount:**

Mounting the sound meter on a camera tripod (not supplied) will increase the stability and accuracy of the meter by eliminating any sound generated by the user.

### **Specifications:**

**Standard applied:** IEC651 type 2, ANSI S1.4 type 2

**Calibration sound source:** 94 dB @ 1 kHz

**Measurement range:** 30~130 dBA

**Accuracy:**  $\pm 1.5$  dB (reference sound pressure standard 94dB@1KHz)

**Frequency response:** 31.5~8.5KHz

**Resolution:** 0.1dB

**Frequency weighting:** A/C

**Analog bar graph:** 2dB / 1 bar

**Display update time:** 2 times/second (**FAST**), 1 time/second (**SLOW**)

**AC signal output:** 4Vrms/ full barograph, output impedance approximately 600 ohms

**DC signal output:** 33mV/dB

**Sampling rate:** FAST: 125ms, SLOW: 1s

**Power supply:** 6V (4x 1.5V AA battery)

**Dimensions:** 9.5"x2.5"x1.5" (240\*65\*38 mm)

**Weight:** 9.5 oz (270 g), batteries included

Sound Level Meter ennoLogic eS440A

Made in China

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