# Detachable Probe
# Sound Meter

# 840012
# Instruction Manual

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## 1. INTRODUCTION

Features a detachable probe for easy replacement and AC outputs. Also has A and C decibel frequency weighting scales, fast or slow time weighting, and two hold functions. Meets ANSI S1.4:2014 and IEC 61672:2013 for Type/Class 2 sound meters. Covers 30 to 130 dB in both Manual and Auto ranging scales with 0.1 dB resolution and an accuracy of ±1.0 dB. Calibrate in compliance with OSHA using Acoustical Calibrator 850016 or equivalent. Has a fold-out easel back and a tripod screw.

## 2. OPERATING INSTRUCTIONS
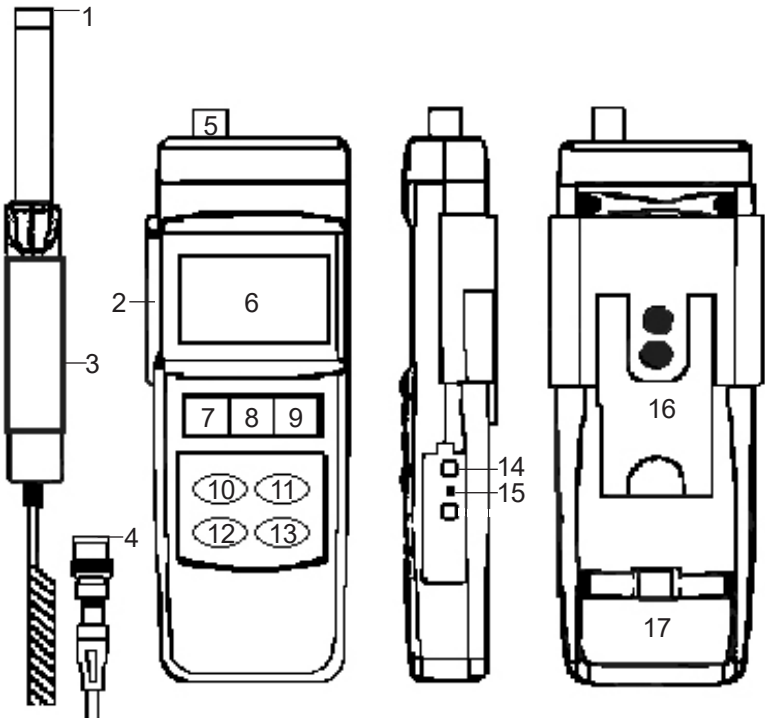


1. Microphone
2. Probe Holder
3. Probe Handle
4. BNC Plug
5. BNC Socket
6. LCD Display
7. Power Button
8. Hold Button
9. Rec./Max/Min
10. Max. Hold Button
11. A/C Button
12. Fast/Slow Button
13. Range Button
14. AC Output
15. Cal. Adjustment
16. Easel
17. Battery

## 2-A.  MEASURING PROCEDURES

• Connect the **BNC PLUG** to the **BNC SOCKET**.
• Slide the **PROBE HANDLE** into the **PROBE HOLDER** if desired.
• Press the **POWER** button to turn the unit on.
• The default mode is: Auto range, "A" frequency weighting and
  Fast time weighting.
• To change the frequency weighting, press the **A/C** button.
• The "A" frequency weighting simulates human ear response. For an
  environmental sound measurement, select the "A" weighting.
• The "C" weighting approximates a flat response. Often, "C" is used
  to check the noise of machinery where the target sound level is
  already known.
• Point the **MICROPHONE** at the sound source.
• Use the auto range setting (default) or find the appropriate range using the
  **RANGE** button.
• The manual selections are: 30 to 80dB, 50 to 100db, or 80 to 130db.
• If "- - - - -" is displayed, switch to another range. The sound level is
  displayed in decibels (dB).
• For general applications, press the **FAST/SLOW** button to select "Fast",
  simulating the human ear's response time.
• The "Slow" setting is generally used to obtain an average of vibrating
  sound levels.
• Press the **POWER** button to turn the unit off.

## 2-B.  HOLD

• During the measuring procedure, press the **HOLD** button
  to freeze the display.
• "HOLD" and the last measurement are displayed.
• Press the **HOLD** button again to exit this function.

## 2-C  RECORD MAXIMUM / MINIMUM MEASURMENTS

• Press the **REC MAX/MIN** button once to enter the
  recording mode. "REC" and the recorded values are displayed
  and continuously updated.
• Press the **REC MAX/MIN** button as needed to view the recorded Max and
  Min values. "REC Max" and the maximum recorded value, or "REC Min"
  and the minimum recorded value are displayed.

## NOTE:
The Max/Min values are frozen and not updated until the meter returns to
recording mode.

- To return to recording mode, press the **HOLD** button. "REC" is displayed without "Max" or "Min".
- To erase the recorded Max/Min values and exit the recording mode, press the **REC MAX/MIN** button for at least 2 seconds.

## 2-D.  MAX HOLD: (Holds the max measurement on the display.)

Press the **MAX HOLD** button, "P.H" appears on the LCD.
Press the **MAX HOLD** button again to exit this function.

### NOTE:
Select auto range when using this function in slow varying noise environments. Select the appropriate manual range when using this function in pulsing noise environments.

## 2-E.  AC OUTPUT

The 3.5 mm diameter **AC OUTPUT** may be used to connect the unit to an external output device, such as an analyzer, recorder, or controller.

## 2-F.  CALIBRATION

- The meter's **CAL** adjustment is located on the side of the unit.
- Use Sper Scientific's 2 Pt. Acoustical Calibrator 850016 (or equivalent) to calibrate the unit in compliance with OSHA.
- Press the **POWER** button to turn the unit on.
- Turn the acoustical calibrator on and place it onto the meter's **MICROPHONE**
- To calibrate the meter to 94 dB, select the 50 to 100 dB range, FAST response, and "A" weighting.
- Use the calibration screw driver to slowly turn the **CAL** adjustment until the display reads 94.0.
- To calibrate the meter to 114 dB, select the 80 to 130 dB range, FAST response, and "A" weighting and turn the **CAL** adjustment until the display reads 114 dB.

## 2-G.  PRECAUTIONS

- Do not store or operate the unit in high temperatures or in high humidity for long periods.
- Keep the microphone dry.
- Do not force the **CAL** adjustment, doing so may damage the mechanism and void the warranty.

## 2-H.  AUTOMATIC SHUT OFF

After approximately 10 minutes without activity (with no buttons pushed), the meter will automatically shut off. To disable this feature, press the **REC** button.

## 2-I.  BATTERY REPLACEMENT

When the low battery icon is displayed, open the **BATTERY** compartment to install a fresh 9V alkaline or heavy duty type battery. In-spec measurements may be made for several hours after the icon appears.
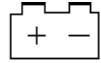
## 3. SPECIFICATIONS

| | |
|---|---|
| Display | 2″ x 1.25″ LCD (52x32mm), 5 digits with indicator. |
| Functions | dB ( A & C Frequency Weighting), Response (Fast, Slow), Hold, Memory (Min/Max), Max. Hold, AC Output |
| Measurement Range | 30 to130 dB |
| Resolution | 0.1 dB |
| Range Selector | 30 to 80dB, 50 to 100dB, 80 to 130dB, 50dB on each step, over/under range indicator. Auto Range: 30 to 130dB |
| Accuracy | ±1.0 dB |
| Frequency | 31.5 Hz to 8,000 Hz |
| Microphone | Electret condenser microphone, Dia. .5″ (12.7mm) |
| Response (Fast/Slow) | Fast (F): t = 200 ms |
| | Slow (S): t = 500 ms |
| Calibration VR | Built-in external calibration VR for easy calibration using a standard 94 dB calibrator. |
| Output Signal | AC output:  AC 0.5 Vrms corresponding to each range step. |
| Output impedance: 600 ohm | Slow (S): t = 500 ms |
| Output Terminals | AC, 3.5mm diameter jack |
| Operating Temp. | 32 to 122°F (0 to 50°C) |
| Operating Humidity | Less than 80% RH |

**SPECIFICATIONS cont.**

| Power Supply | One 9V battery, heavy duty or alkaline type |
|---|---|
| Power Consumption | Approximately DC 6 mA |
| Weight | Weight: 8 oz (225 g) with battery |
| Dimension | Meter 10.6 x 2.7″ x 1.1″ (268 x 68 x 29mm). Probe 6.7″ x 1″ x .7″ (170.5 x 24.5 x 19mm) Probe cord length: 78.7″ (200cm) |
| Included Accessories | Windscreen, calibration tool, instructions, 9V battery, hard-shell foam-lined carrying case |
| Optional Services & Accessories from Sper Scientific | 840012C NIST Traceable Cert. of Calibration 850016 2 Pt. Acoustical Calibrator 840091 Sound Meter Windscreen 840090 Water Resistant Instrument Pouch 840093 Field Tripod |

## 4. 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
(480) 948-4448

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.