

Professional Sound Level Meter

Instruction Manual

1. Introduction

This Sound Level Meter is a quality sound level measuring instrument with a set of functions that make it useful for a variety of professionals. With a backlight LCD display, 130dB full scale measurement capability, both A and C-weighting measurement support, and peak capture functions, it can help make many measurement tasks easier.

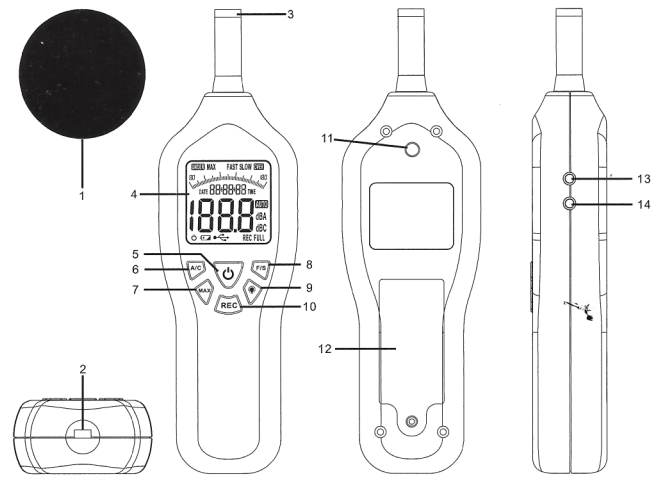
2. Product Features

- Sound level range: 30dB to 130dB(Auto Ranging)
- A and C weighting for measurements
- Fast and Slow time response selection
- Max Hold function
- High accuracy
- Bar graph and large numeric display
- AC/DC output voltage function
- White LCD Backlight
- Over / Under Range indicator
- Time and date display
- Automatic Power-off function to conserve battery life
- Low Battery Alert
- Threaded tripod mount (Tripod not included)
- Soft carrying case, USB cable (power line function only), instruction manual, AC/DC output leads, batteries included
- CE Certified & RoHS Compliant

3. Product Specifications

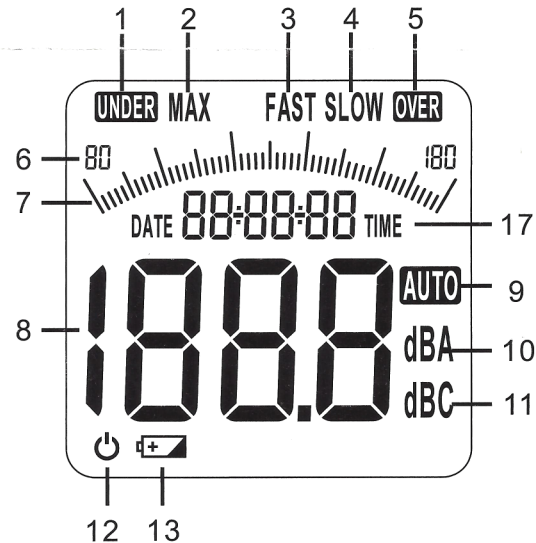
Designed according to standards	IEC651 (Type 2) and ANSI S1.4 (Type 2)
Calibration sound source	94dB @ 1KHz
Measurement range	30 – 130dB
Accuracy	+1.5dB (reference sound pressure standard, 94dB@1KHz)
Frequency Response	31.5Hz – 8.5KHz
Resolution	0.1dB
Measurement weighting	A or C weighting
Bar graph display	2dB/Bar graph increment
Meter Response time	Fast (125 milliseconds), Slow (1 second)
Numeric Display Response Rate	Fast (2 updates/second), Slow (1 update/second)
AC signal output	2V(RMS) full scale (130 dB), output impedance is approximately 600 Ohms
DC signal output	33mV/dB (per dB above 30dB threshold detection level)
Power Source	(4) AA (1.5V) batteries (R6 or LR6 or GR6M)
Physical Dimensions	245mm x 70mm x 45 mm
Weight	Approximately 240 grams (with batteries)

4. Product Description



1. Sponge ball (Mandatory for outdoor use to reduce wind noise)
2. USB socket (used for USB power only)
3. Capacitive microphone
4. LCD display with backlight
5. Power on/off switch
6. A/C frequency weighting selection button
7. MAX reading button
8. FAST/SLOW response button
9. Backlight button
10. Date and time switch button
11. Tripod mounting thread
12. Battery cover
13. AC output socket (for analog output)
14. DC output socket (for analog output)


5. LCD Display Features






1. **UNDER:** Alarm symbol, if the reading below minimum, this symbol will display.
2. **MAX:** When in this mode only the highest noise reading will display on the main reading display
3. **FAST:** Fast time weighting (refer to respond speed)
4. **SLOW:** Slow time weighting (refer to respond speed)
5. **OVER:** Alarm symbol, if the measurement is over the maximum range (130dB), this symbol will display.
6. **Bar Graph:** Sound levels are displayed via this graph and via the digital display reading (see 8)
7. **Date and Time Display** (display current date and time)
8. **Numeric measurement display**
9. **AUTO:** Permanently displayed to indicate the meter is in auto ranging mode
10. **dBA:** Measurement unit (A-weighting)
11. **dBC:** Measurement unit (C-weighting)
12. **Auto off symbol**
13. **Low battery warning symbol** – indicates that battery voltage is low and that the batteries should be changed. If operating the unit from USB cable-supplied power (5V), this symbol will also be activate.

6. Operating Instructions

6-1 Turning the unit on and off

6-1-1 Press the  **button** to turn on the meter.
After 10 minutes without any button presses, the meter will automatically power off.

6-1-2 Press the  **button** again to turn off the meter manually.

6-1-3 To temporarily disable the automatic power off function, with the meter initially "off", press and hold the **F/S button** then press and release the  **button** to turn on the meter. After the screen briefly turns and then goes blank, release the **F/S button**. The meter should now remain on and continue to measure as long as it has battery power or until the user turns it off by pressing the  **button**. This feature may be useful when testing alarm systems without the help of an assistant to operate the meter. The meter will revert to its normal 10 minute automatic power off function the next time it is powered off and on again without holding the **F/S button**.

6-2 A/C frequency weighting selection

6-2-1 Press the **A/C button** to select measurement frequency weighting method A or C (your selection will display on the right side of the LCD screen as dBA or dBC).

6-2-2 The meter always defaults to A-weighting when powered on.

A weighting enables the meter to respond in a manner similar to the human ear, which is less sensitive to low frequency sounds than high frequency sounds and so the perceived loudness varies with the source frequency. Typical applications include environmental measurement, law enforcement and workplace design.

C weighting is suitable for flat response measurements with no low frequency measurement rolloff across the lower part of the sound frequency spectrum (below 1KHz). Typical applications include the sound level analysis of machinery and engines.

6-3 MAX value measurement function

6-3-1 To have the meter capture and hold the maximum, or peak sound pressure level measurement, press and release the **MAX button** to freeze the maximum measurement on the screen. The reading will remain unchanged until a higher level reading is detected and captured. Note that the bar graph will continue to

change/fluctuate to reflect the current sound level reading. When operating in MAX mode, the "MAX" screen icon will be indicated on the LCD display.

6-3-2 Press the **MAX button** again to exit MAX, or peak capture, mode.

6-4 FAST/SLOW response function


6-4-1 The meter defaults to fast response mode when it is powered on.

6-4-2 Pressing the **F/S button** toggles the meter's response and display update modes between Fast (125 millisecond meter response time with numeric display updating at 2 times/second), and Slow (1 second meter response time and numeric display updating at 1 time/second). The meter's bargraph display will update at the 125 millisecond (Fast) or 1 second (Slow) response time intervals.

6-5 BACKLIGHT function

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

6-6 Setting time and date

6-6-1 To set the date and time on the meter, start with the meter powered "Off". Press and hold the **A/C button** and the press and release the **Power Button** . The LCD screen should clear and you will see the current time displayed with a flashing digit in the hours field.


6-6-2 Press the **MAX button** to decrement the value, or press the **Back light button** to increment the value of the flashing digit as needed.

6-6-3 Press the **F/S button** to select the next digit to the right, or press the **A/C button** to select the next digit to the left of the currently selected (flashing) digit. Use the **MAX** and **Backlight** buttons as needed to adjust the values of each digit.

6-6-4 After setting the time, press the **F/S button** to move past the right most digit (Seconds) and the display will change to show the date in MM-DD-YY format. As with setting the time in 6-6-2 and 6-6-3, use the **A/C** and **F/S** buttons to select the digits to edit, and the **MAX** and **Backlight** buttons to decrement or increment the value

6-6-5 When finished, press the **REC** button to store the time and date settings and return the meter to measurement mode.

7. Battery Replacement

If the meter does not power on normally or the low battery icon  appears on the LCD display, replace the batteries as soon as possible. Use a screwdriver to unscrew the back battery compartment cover and install 4 x AA batteries. Reinstall the batter compartment cover and screw before use.

8. Operating Precautions

8-1 Wind blowing across the microphone could cause additional extraneous noise. When using the instrument outdoors or in the presence of wind/airflow please ensure the sponge ball is fitted to achieve better measurement results.

8-2 Do not store or operate the instrument at high temperature or in a high humidity environment.

8-3 Keep microphone dry and avoid severe vibration.

8-4 When not in use for prolonged periods it is recommended that you remove the battery.

9. Tripod Mount

Mounting the meter via a camera tripod (not supplied) will increase the stability & accuracy of the meter readings by eliminating any sound waves reflected from the user.

10. DC Output

10-1 Use the DC output connector and output voltage lead wires to connect the sound level meter to a datalogger, digital multimeter, or oscilloscope for recording sound level pressure measurements. The output voltage scaling is 33mV/dB referenced to the "floor" or threshold detection level of 30dB. Thus, a measurement of 94dB would result in an output of approximately 2.1V DC = (94dB – 30dB) x 33mV/dB).

11. AC Output

11-1 Use the AC output connector and output voltage lead wires to connect the sound level meter to a datalogger, digital multimeter, or oscilloscope for recording sound level pressure measurements. The output voltage scaling is 2.0VAC (RMS) a full scale (130dB). This output is an unamplified signal from the input transducer circuit, so the output AC voltage level scales logarithmically with increasing sound pressure level (SPL). For each 20dB increase in SPL, the AC voltage output increases by a factor of 10. For example, at 90dB, the output is approximately 18mV and at 110dB, the output is approximately 180mV.

12. Trouble Shooting

12-1 Pressing the power button to turn on the unit and the display doesn't turn on, or display clears/displays nothing:

- Check to ensure that the batteries are in good condition, properly installed with good contact to the pins and with the correct polarity.
- Remove batteries for one minute and re-install.
- Replace the batteries with new ones.

12-2 For all other issues please contact your supplier.

WARRANTY: AMERICAN RECORDER TECHNOLOGIES, INC. (ART) includes with this product a limited one year guarantee, free from defects in manufacture and workmanship to the original owner. Warranty does not apply to misuse, abuse, neglect, accident, improper use, etc. **ART** reserves the right to make such determination on the basis of factory inspection. A valid return authorization number must be obtained from **ART** customer service department for all factory warranty service. All warranty repairs must be returned prepaid. (COD's will be refused).



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