

# TENMARS

## SOUND LEVEL METER



User's Manual

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## ★ Safety Information ★

Read the following safety information carefully before attempting to operate or service the meter. Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.

### □ **Maintenance & Clearing**

1. Repairs or servicing not covered in this manual should only be performed by qualified personnel.
2. Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on this instruments.

### □ **Safety Symbols**

⚠ : Caution(refer to accompanying documents).

☐ : Meter is protected throughout by double insulation or reinforced insulation.  
When servicing, use only specified replacement parts.

CE : Comply with EMC.

## ★General Description★

Thank you for using our Sound Level Meter.

To ensure that you can get the most from it, we recommend that you read and follow the manual carefully before use.

This unit conforms to the IEC651 Type2, ANSI S1.4 Type2 for Sound Level Meters.

This Sound Level Meter has been designed to meet the measurement requirements of safety Engineers, Health, Industrial safety offices and sound quality control in various environments.

- Ranges from 30dB to 130dB at frequencies between 31.5HZ and 8 KHZ .
- Display with 0.1dB steps on a 3 1/2 digits LCD.
- With two equivalent weighted sound pressure levels, A and C.
- Both AC and DC signals output is available from both standard 3.5mm coaxial socket suitable for a frequency analyzer, level recorder, FFT analyzer, graphic recorder ; etc.

## ★Specifications★

1. **Display:** 3 1/2 digits LCD ,Resolution : 0.1dB ,  
**Display up data :** 0.5sec.
2. **Standard applied :** IEC61672-1 Class2  
ANSI S1.4 Type2.
3. **Frequency range :** 31.5Hz~ 8KHz.
4. **Measuring level range :** 30 ~ 130dB.
5. **Measurement Item :** SPL(Sound Pressure Level)
6. **Frequency weighting :** A/C.
7. **Microphone :** 1/2 inch Electret condenser  
microphone.
8. **Time weighting :** FAST(125mS),SLOW( 1sec )
9. **Level ranges :** LO : 30 ~ 80dB.  
Med : 50 ~ 100dB.  
Hi : 80 ~ 130 dB.
10. **Accuracy :**  $\pm 1.5$ dB(under reference conditions).
11. **Dynamic range :** 50dB.
12. **Alarm function :** "OVER" is showing when  
input is more than upper  
limit of range."UNDER" is  
showing when input is less  
than lower limit of range.
13. **MAX/MIN hold :** Hold readings the Maximum  
or Minimum value.
14. **AC output :** 1Vrms at FS(full scale).  
Output impedance : Approx.50 $\Omega$ .

FS : means the upper limit of each level range.

15. **DC output** : 10mV/dB.

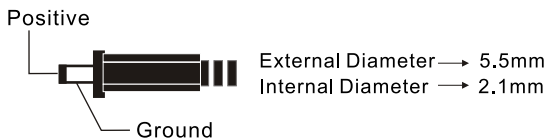
output impedance approx.100Ω.

16. **Low battery indication**: Replace battery as LCD display " ".

17. **Power supply** : 9V NEDA 1604 , IEC 6F22, JIS 006P battery 1pc.

18. **Power life** : About 30 hrs (alkaline battery).

19. **DC adapter** : Voltage 9V<sub>DC</sub>(8~13V<sub>DC</sub>Max)  
Supply current : >30mA<sub>DC</sub>.



20. **Operation height**:2000M under the elevation above sea level.

21. **Operation Temperature & Humidity** :

5°C~40°C, below 80% RH ◦

22. **Storage Temperature & Humidity** :

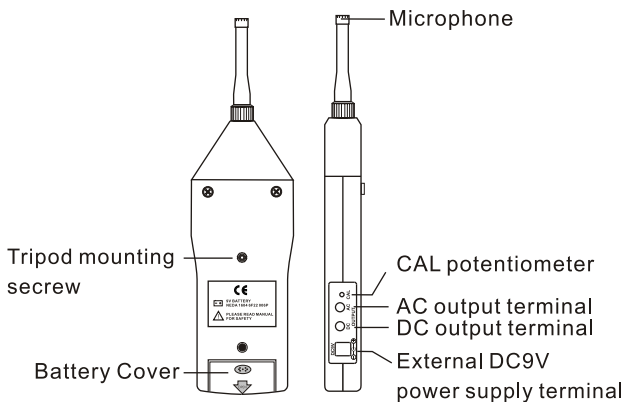
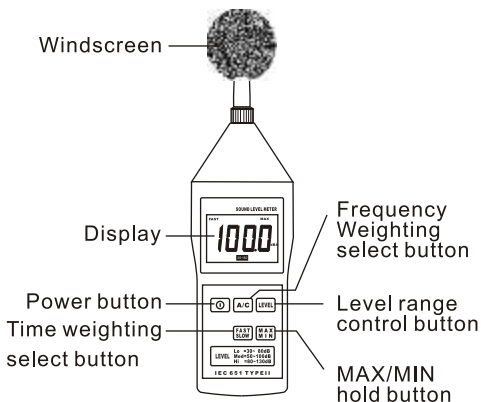
-10°C~60°C, below 80% RH ◦

23. **Dimension**: 280mm(L)x80mm(W)x32mm(H).

24. **Weight**: About 300g. (Including battery)

25. **Accessories**: Instruction manual 、 carrying case 、 9V battery 、 screwdriver 、 3.5φ plug ◦

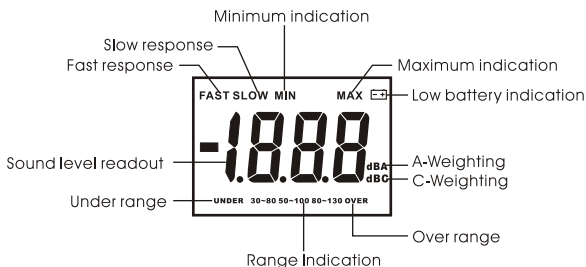
# ★ Name And Functions ★



## 1. Windscreen

If you operate at wind speed over 10m/sec, please put protective accessories in front of the microphone.

## 2. Display



## 3. Power button

The  $\text{\textcircled{1}}$  key turns the sound level meter ON or OFF

## 4. MAX/MIN hold button.

Press button to enter the maximum and minimum recording mode. Select the proper Level range before using MAX/MIN to ensure that reading value will not exceed the measurement range.

Press once to select MAX value. Press again to select MIN value, annunciator blinking.



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Output signal by standard 3.5mm coaxial socket signal on pin.

Press and hold down button for 2 seconds to exit the MAX/ MIN mode ◦

Sampling rate : 160ms ◦

5. **Level range control button.**

Each time the level button is pressed. The level range will change between "LO" level, "Med" level and "Hi" level in the a circular manner.

6. **Frequency Weighting select button.**

A : A-Weighting. For general sound level measurements.

C : C-Weighting. For checking the low-frequency content of noise.

(If the C-Weighted level is much higher than the A-weighted level, then there is a large amount of low-frequency noise)

7. **Time weighting select button.**

FAST : for normal measurements.

SLOW : for checking average level of fluctuation noise.

8. **Microphone**

1/2 inch Electret Condenser microphone.

9. **CAL potentiometer**

Calibration control, For level calibration adjustment.

10. **AC output terminal**

1Vrms Corresponding to each range step.

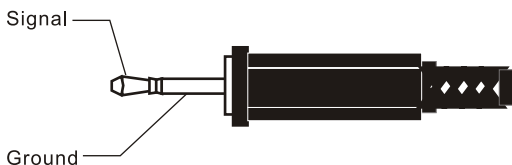
Output impedance  $\cong 50\Omega$

11. **DC output terminal**

Output : 10mV/dB

Output impedance  $\cong 100\Omega$

Output signal by standard 3.5mm coaxial socket signal on pin.



12. ***External DC 9V Power supply terminal***

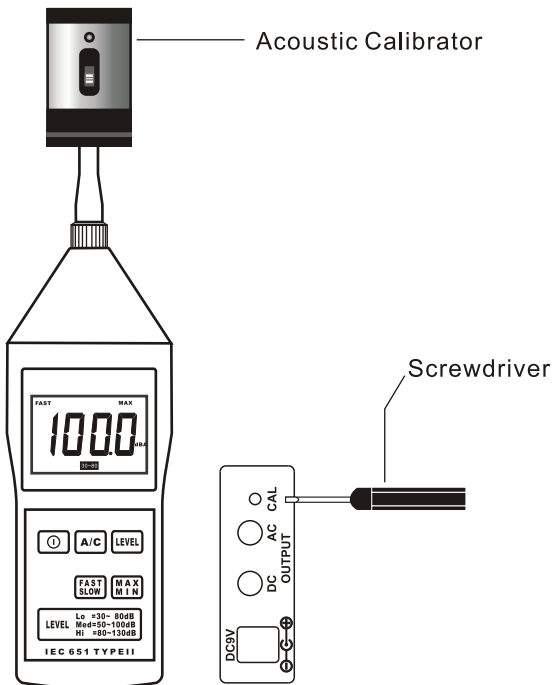
***For connection with AC adapter.***

13. ***Tripod mounting screw.***

14. ***Battery cover***

# ★ Calibration Procedures ★

## Using a standard Acoustic Calibrator (94dB, 1KHz Sine wave)



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- (1) Make the following switch settings.  
Display : dBA  
Time weighting : FAST
  - (2) Insert the microphone housing carefully into the insertion hole of the calibrator.
  - (3) Turn on the switch of calibrator and adjust the CAL potentiometer of the unit. The level display will indicate the desired level. Our products are All well calibrated before shipment.  
Recommended Recalibration cycle : 1 year.

□ **Measurement Preparation**

- (1) Battery Loading  
Remove the battery cover on the back and put in one 9V Battery.
- (2) Battery Replacement  
When the battery voltage drops below the operating voltage, mark appears .  
If it appears , battery should be replaced with new one.
- (3) AC Adapter Connection When the AC adapter is used, insert the plug of the adapter into the DC9V connector on the side panel.

## ★Operating Precautions★

1. Wind is blowing across the microphone would bring additional extraneous noise. Once using the instrument in the presence of wind, it is necessary to mount the windscreen to filter the undesirable signals.
2. Calibrate the instrument before operation if the instrument was not in use for a long time or operation at bad environment.
3. Do not store or operate the instrument at high temperature and high humidity environment.
4. Keep microphone dry and avoid severe vibration.
5. Please take out the battery and keep the instrument in low humidity environment.  
When not in use.

## ★Measurement★

1. Open battery cover and install a 9 Volt battery in battery compartment.
2. Turn on power and select the desired response Time and weighting. If the sound source consists of short bursts or only catching sound peak, set response to FAST. To measure average sound level, use the slow setting. Select A weighting for general noise sound level and C weighting for measuring sound level of acoustic material.
3. Select the desired Level
4. Hold the instrument comfortably in hand or fix on tripod and point the microphone at the suspected noise source, the sound pressure level will be displayed.
5. When MAX/ MIN (maximum, minimum hold) mode is chosen. The instrument captures and holds the maximum and minimum noise level for a long period using any of the time weighting and ranges. Press the MAX/ MIN button 2 seconds to clear the MAX/MIN Reading. " MAX" or "MIN" symbol disappears.
6. Turn OFF the instrument and remove battery when not in use.

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**★Manufacturer★**

TENMARS ELECTRONICS CO., LTD.

TAIPEI OFFICE:

6F, 586, RUI GUANG ROAD, NEIHU, TAIPEI,  
TAIWAN