TENMARS TM-102 Sound Level Meter Datalogging User Manual

Contents

TENMARS

TENMARS TM-102 Sound Level Meter Datalogging

Product Information Sound Level Meter Datalogging

The Sound Level Meter Datalogging (TM-102 TM-103) is a device designed to measure sound levels in various environments. It conforms to the IEC651 Type2 and ANSI S1.4 Type2 standards for sound level meters. The device has a frequency range of 31.5Hz to 8KHz and ranges from 30dB to 130dB. It has two equivalent weighted sound pressure levels, A and C, and comes with a 4 digits LCD display with 0.1dB steps. The device uses a 1/2 inch Electret condenser microphone and is powered by a 9V NEDA 1604IEC 6F22 battery.

Specifications

- **Display**: 4 digits LCD with maximum/minimum
- **Resolution**: 0.1dB
- **Display Update**: 0.5 sec
- **Standard applied**: IEC651 Type2, ANSI1.4 Type2
- **Frequency range**: 31.5Hz~8KHz
- **Measuring level range**: A Weighting 30 ~130dB, C Weighting 35~130dB
- **Frequency weighting:** A/C
- **Microphone**: 1/2 inch Electret condenser microphone
- **Data logging**: TM-103 only
- **USB Interface Connector**: TM-103 only
- **Power Supply**: 9V NEDA 1604IEC 6F22 battery, above sea level
- **Operation temperature & Humidity**: case9V Battery, windscreen

Product Usage Instructions

1. Before use, read and follow the manual carefully.
2. If operating at wind speed over 10m/sec, put the protective accessory windscreen in front of the microphone.

3. Press the power button to turn on the device.
4. Select the frequency weighting using the frequency weighting select button (A for general sound level measurements and C for checking the low-frequency content of noise).
5. Select the time weighting using the time weighting select button (FAST for normal measurements and SLOW for checking the average level of fluctuation noise).
6. To take a reading, hold the device and point the microphone towards the sound source.
7. The reading data shown on LCD can be locked by pressing the HOLD button.
8. To activate the MAX/MIN function, press the MAX/MIN hold button. The MAX symbol appears on the display and the device measures and shows the maximum value of the parameter. Press the button again, and the MIN symbol appears on the display, and the device measures and displays the minimum value of the parameter.
9. The backlight button can be pressed to enable the display backlight for easy readings in dark environments. Pressing it for more than 1 second disables the backlight, which automatically turns off after 15 seconds.
10. Replace the battery when the low battery indication is displayed on the LCD.

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 quality control in various environments.

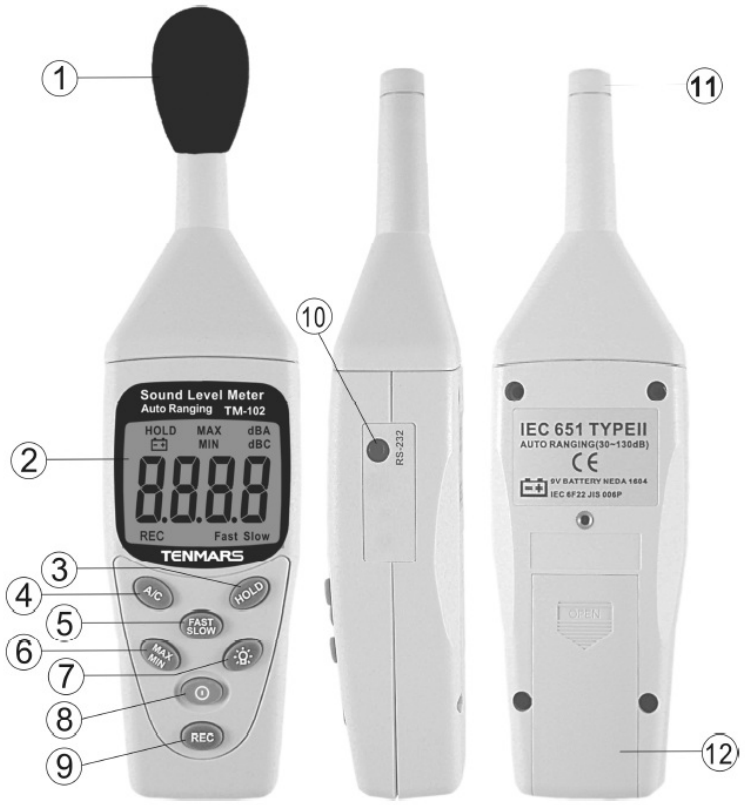
- Ranges from 30dB to 130dB at frequencies between 31.5HZand 8 KHZ .
- Display with 0.1dB steps on a 4 digits LCD.
- With two equivalent weighted sound pressure levels, A and C.

GENERAL DESCRIPTION

1. **a. Display**: 4 digits LCD with maximum/minimum, Resolution: 0.1dB, Display Update: 0.5 sec.
2. **b. Standard applied**: IEC651 Type2, ANSI1.4 Type2.
3. **c. Frequency range**: 31.5Hz~8KHz.
4. **d. Measuring level range**: Weighting 30 ~130dB. C Weighting 35~130dB.
5. **e. Frequency weighting**: A/C.
6. **f. Microphone**: 1/2 inch Electret condenser microphone.
7. **g. Time weighting**: FAST(125mS),SLOW(1 sec).
8. **h. Level ranges**: 30 ~130dB(Auto Range).
9. **i. Accuracy**: ±1.5dB.
10. **j. Dynamic range**: 50dB.
11. **k. MAX/MIN**: Hold readings for the Maximum and Minimum value.
12. **l. DATA HOLD**: The reading data shown on LCD can be locked while pressing the button
13. **m. Low Battery Indication:** Replace battery as LCD display “  ”.
14. **n. Power Supply**: 9V NEDA 1604 IEC 6F22, JIS 006P battery×1pcs.
15. **o. Power Life** : About 50 hrs (alkaline Battery).
16. **p. Operation height**: 2000M under the elevation above sea level.
17. **q. Operation temperature & Humidity**: 5°C~40°C, below 80%RH.

18. **r. Storage Temperature & Humidity**: – 10°C ~60°C, below 70%RH.
19. **s. Dimension**: 200mm(L)x55mm(W)x38mm(H).
20. **t. Weight**: About 170g. (Including batteries)
21. **u. Accessories**: Instruction manual carrying case 9V Battery, windscreen.

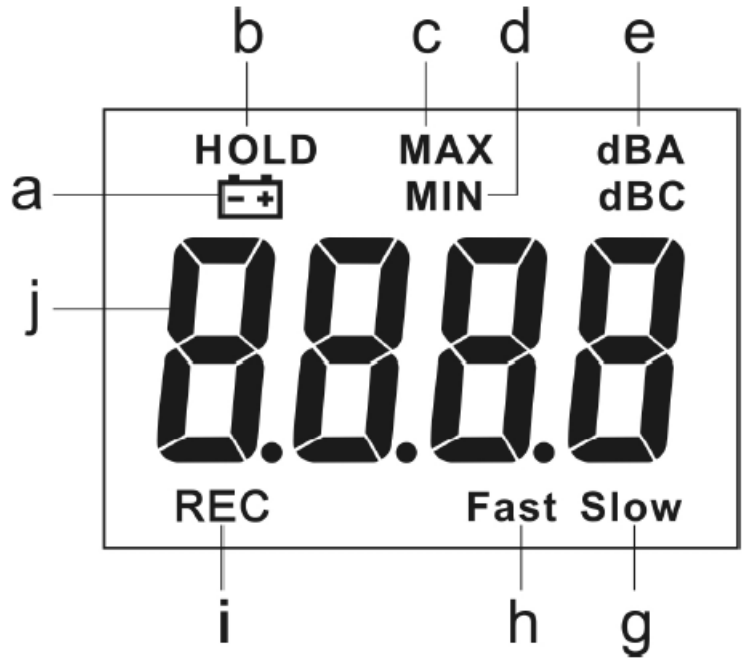
NAME AND FUNTIONS



1. Windscreen.
2. Display.
3. HOLD button.
4. Frequency weighting select button.
5. Time weighting select button.
6. Maximum/Minimum hold button.
7. Backlight button.
8. Power button.
9. REC button. (TM-103)
10. USB Interface Connector.(TM-103)
11. Microphone.
12. Battery Cover.

TM-102/ TM-103

1. Windscreen If you operate at wind speed over 10m/sec, please put protective accessorieswindscreen in front of the microphone.
2. Display



1. **a**.Low battery indication
2. **b**.DATA HOLD indication
3. **c**.Maximum indication
4. **d**.Minimum indication
5. **e**.A-Weighting
6. **f**. C-Weighting
7. **g**.Slow response
8. **h**.Fast response
9. **i**.REC response
10. **j**.Sound level read out

3. HOLD button. The reading data shown on LCD can be locked while pressing the button.
4. Frequency Weighting select button.
    1. **A**: A-Weighting. For general sound level measurements.
    2. **C**: C-Weighting. For checking the lowfrequency 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)
5. Time weighting select button.
    1. **FAST**: for normal measurements.
    2. **SLOW**: for checking average level of fluctuation noise.
6. MAX/MIN hold button
    1. Press the key to activate the function. The “MAX” symbol appears on the display and instrument measures and show the Maximum value of parameter which automatically updates itself when a larger value is measured.
    2. Press the key again and the “MIN” symbol appears on the display and the instrument measures and displays the Minimum value of the parameter which automatically updates itself when a lower value occurs.
    3. The MAX/MIN function will be disable if: The MAX/MIN is pressed for more than 1 second.
7. Backlight button. Press the button you enable the display backlight to easy readings in dark environments. Press more than 1 second to disable backlight, which however it automatically OFF after 15 seconds.
8. Power button. The key for 1sec to turn the sound level meter ON or OFF. The auto power will be off

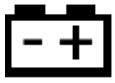
automatically after 5 minutes idle time

9. REC button(TM-103) Press the button to start recording data and press REC again to stop recording. THE MINIMAL INTERVAL IS 1 SECOND AND MAXSIMUM INTERVAL TIME IS 7HOURS 59 MINUTES AND 59 SECONDS TOTAL RECORDS 14.000.
10. USB Interface Connector (TM-103) USB interface with a personal.
11. Microphone 1/2 inch Electret Condenser microphone.
12. Battery cover

CALIBRATION PROCEDURES

1. Using a standard Acoustic Calibrator. (94dB, 1KHz Sine wave)
2. Make the button settings. Display dBA Time weighting: FAST
3. Insert the Microphone nozzle carefully into the insertion hole of the calibrator.
4. Press A/C button then press the HOLD button, hold the 2 buttons at the same time more than 1 second. LCD will be blinking to confirm calibration.
5. When LCD blinked, release the A/C and the HOLD buttons. The sound level meter will display 94.0 dBA. The calibration is done.
6. The 94dB calibration process can be repeated until the meter reads 94.0 dB. 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, the mark  appears. If it appears, battery should be replaced with new one.

OPERATING PRECAUTIONS

1. Wind 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 preventing to pick up undesirable signals.
2. To achieve more accurate measurement, use an extension cable to separate the Microphone from the main body so that the effect of unexpected sound reflection can be eliminated.
3. Calibrate the instrument before operation if the instrument was not in use for a long time or operation at bad environment.
4. Do not store or operate the instrument at high temperature and high humidity environment.
5. Keep microphone dry and avoid severe vibration.
6. Please take out the battery and keep the instrument in low humidity environment. When it is 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

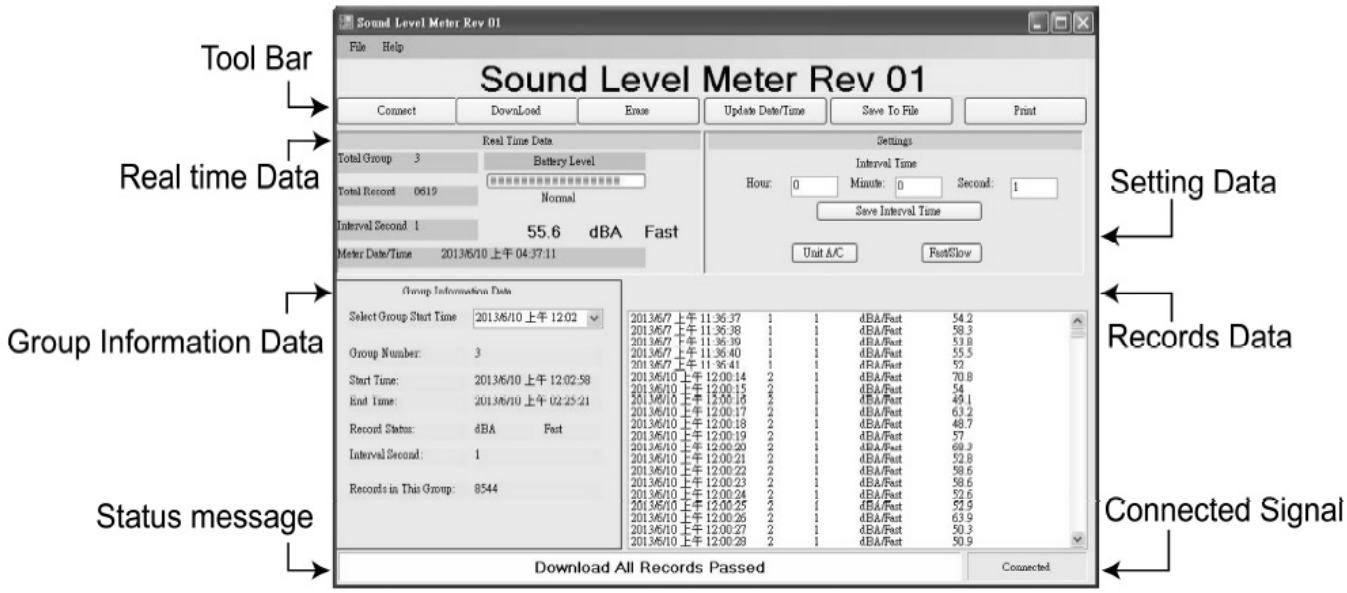
material.

3. 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.
4. When MAX/ MIN (maximum, minimum hold) mode is chosen. The instrument captures and holds the maximum or minimum noise level. Press once to select MAX value. Press again to select MIN value, Press again to exit the MAX/MIN mode. “MAX” or ”MIN” symbol disappears.
5. Turn off the instrument and remove the battery when it is not in use.
6. If the test exceeds 130dB,LCD will be display ,and if it is below 30dB, it will display.

SETUP USER END

1. The User End package contains
    1. Custom designed USB cable for User End
2. System Required
    1. Windowns 2000/ XP/10
3. Minimum Hardware Required
    1. Pentium III 500MHZ PC compatible,or above 128MB RAM; At least 10MB hard disk space available to install User End program.Recommended display resolution is 800X600 or above.

USER END MANIPULATION MENU



Use button [Connect] to connect meter and PC. This step is the first step to use this software. Use button [Download] to download records from Meter to Local computer. ※If you are downloading ,the meter’s button will be unavailable. Use button [Erase] to erase all the records saved in memory. Use button [Update Meter Date/Time] to let the time in meter to be same with the computer time. Remember if the battery is taken out, the clock in the meter will stop. Use button [Save to File] to export the records
from the list box to txt file. This button will be enabled after downloading records. Use button [Print] to print all the downloaded data.

1. **Real time Data**

    Real time data section is used to displayed real time data including DB value, dba/dbc status, fast/slow status, hold, rec, max/min status. Current meter situation including total group and total records in the memory,

interval, meter date and time, are also displayed at the left side.

2. **Group information Data**

   Group information data section is used to display selected group information including start time, end time, dba/dbc status, records number in selected group.

3. **Status Message**

   Status message is to display current mete status such as recording, connected, disconnected,

4. **Setting Data**

   This section is used to set interval into meter.

5. **Records Data**

   Data will be downloaded into this section after [download records] button is pressed.

6. **Connected Signal**

   The light is used indicated connection status. Green means connected, red means disconnected

END OF LIFE

Caution: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.

Professional Electrical and Environment Test & Measurement Instruments: Battery Capacity / Impedance Tester, TACHO Meter ,LED light meter, Temperature & Humidity meter ,Infrared Thermometer, Sound level meter ,Light meter, EMF meter, UV Light meter, RF meter, Hot wire Anemometer, CO meter Anemometer, Lan cable tester, CO2 meter, Solar power meter, Radiation meter, Clamp meter, Multimeter, Phase Rotation test, Digital Insulation tester Our products of high quality are selling well all over the world

TENMARS ELECTRONICS CO., LTD 6F, 586, RUI GUANG ROAD, NEIHU, TAIPEI 114, TAIWAN.

- **E-mail**: service@tenmars.com
- http://www.tenmars.com

Documents / Resources

	TENMARS TM-102 Sound Level Meter Datalogging [pdf] User Manual TM-102 Sound Level Meter Datalogging, TM-102, Sound Level Meter Datalogging, Level Meter Datalogging, Meter Datalogging, Datalogging

References

- TENMARS