TENMARS

Sound Level Meter
Datalogging

TM-103

CE

HB2TM1030000

CONTENTS

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.

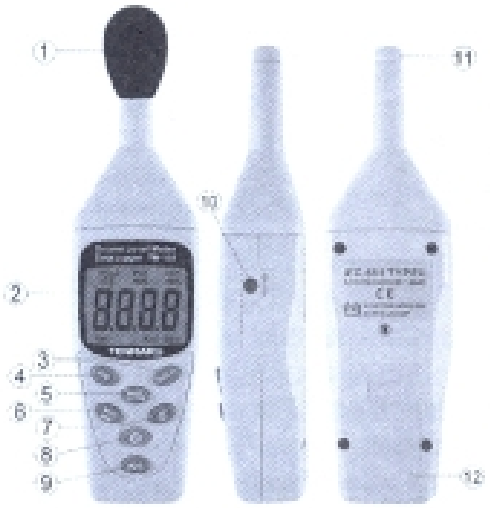
- Ranges from 30dB to 130dB at frequencies between 31.5HZand 8 KHZ .
- Display with 0.1dB steps on a 4 digits LCD.
- With two equivalent weighted sound pressure levels, A and C.

1. GENERAL DESCRIPTION & SPECIFICATIONS

1.1. Display : 4 digits LCD with maximum/minimum, Resolution : 0.1dB, Display Update : 0.5 sec.
1.2. Standard applied : IEC651 Type2, ANSI 1.4 Type2.
1.3. Frequency range : 31.5Hz~8KHz.
1.4. Measuring level range : A Weighting 30 ~130dB. C Weighting 35~130dB.
1.5. Frequency weighting : A/C.
1.6. Microphone : 1/2 inch Electret condenser microphone.
1.7. Time weighting : FAST(125mS),SLOW(1 sec).
1.8. Level ranges : 30 ~130dB(Auto Range).
1.9. Accuracy : ±1.5dB.

1.10. Dynamic range：50dB.
1.11. MAX/MIN：Hold readings for the Maximum and Minimum value.
1.12. DATA HOLD：The reading data shown on LCD can be locked while pressing the button
1.13. REC:According to the timing that is setup by user to save the data.
1.14. Low Battery Indication: Replace battery as LCD display "".
1.15. Power Supply： 9V NEDA 1604、IEC 6F22,JIS 006P battery×1pcs.
1.16. Power Life：About 50 hrs (alkaline Battery).
1.17. Operation height：2000M under the elevation above sea level.
1.18. Operation temperature & Humidity：5℃~40℃, below 80% RH。
1.19. Storage Temperature & Humidity：-10℃~60℃, below 70% RH。
1.20. Dimension: 200mm(L)x55mm(W)x38mm(H).
1.21. Weight: About 170g. (Including batteries)
1.22. Accessories: Instruction manual、carrying case、9V Battery, windscreen.

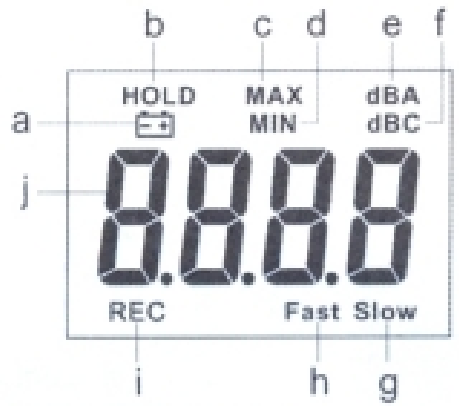
2. NAME AND FUNTIONS



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
10. RS-232 Interface Connector
11. Microphone
12. Battery Cover

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

2.2. Display



a. Low battery indication
b. DATA HOLD indication
c. Maximum indication
d. Minimum indication
e. A-Weighting
f. C-Weighting
g. Slow response
h. Fast response
i. REC response
j. Sound level read out

2.3. HOLD button.
The reading data shown on LCD can be locked while pressing the button.

2.4. 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)

2.5. Time weighting select button.
FAST : for normal measurements.
SLOW : for checking average level of fluctuation noise.

2.6. MAX/MIN hold button
■ 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.
■ 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.
■ The MAX/MIN function will be disable if:
The MAX/MIN is pressed for more than 1 second.
Turn off the meter.

2.7. 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.

2.8. 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

2.9. REC button
Press the button to start recording data and press REC again to stop recording.
THE MINIMAL INTERVAL IS 1 SECOND AND MAXIMUM INTERVAL TIME IS 7 HOURS 59 MINUTES AND 59 SECONDS

2.10. RS-232 Interface Connector
RS-232 interface with a personal.

2.11. Microphone
1/2 inch Electret Condenser microphone.

2.12. Battery cover

3. CALIBRATION PROCEDURES

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

3.2. Make the button settings. Display : dBA
Time weighting : FAST

3.3. Insert the Microphone nozzle carefully into the insertion hole of the calibrator.

3.4. 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.

3.5. When LCD blinked, release the A/C and the HOLD buttons. The sound level meter will display 94.0 dBA. The calibration is done.

3.6. The 94 dB calibration process can be repeated until the meter reads 94.0 dB. Recalibration cycle : 1 year.

4. MEASUREMENT PREPARATION

4.1. Battery Loading
Remove the battery cover on the back and put in one 9V Battery.

4.2. Battery Replacement When the battery voltage drops below the operating voltage, the mark appears. If it appears, battery should be replaced with new one.

5. OPERATING PRECAUTIONS

5.1. 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.

5.2. 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.

5.3. Calibrate the instrument before operation if the instrument was not in use for a long time or operation at bad environment.

5.4. Do not store or operate the instrument at high temperature and high humidity environment.

5.5. Keep microphone dry and avoid severe vibration.

5.6. Please take out the battery and keep the instrument in low humidity environment. When it is not in use.

6. MEASUREMENT

6.1. Open battery cover and install a 9 Volt battery in battery compartment.

6.2. 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.

6.3. 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.

6.4. 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.

6.5. Turn off the instrument and remove the battery when it is not in use.

7. SETUP USER END

7.1. The User End package contains

- Custom designed RS-232 cable for User End

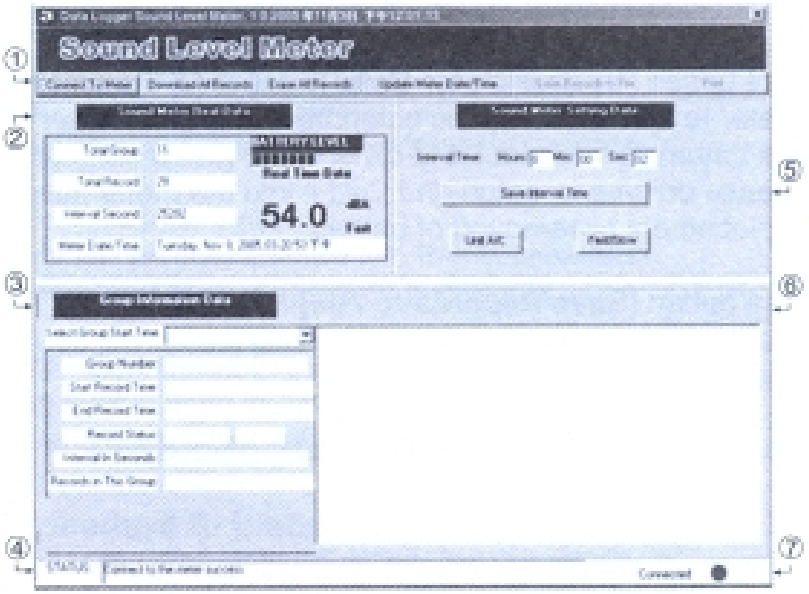
7.2. System Required

- Windows 2000, Windows XP

7.3. Minimum Hardware Required

- 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

8. USER END MANIPULATION MENU



8.1. Tool Bar
Tool bar section has 6 buttons:
[Connect To Meter] [Download All Records]
[Erase All Records] [Update Meter Date/Time]
[Save Records to File] [Print]

Use button **[Connect to meter]** to connect meter and PC. This step is the first step to use this software.

Use button **[Download All Records]** to download records from Meter to Local computer.

Use button **[Erase All Records]** 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. Please do time re-setup and load it into the meter after replacement or removed of battery.

Use button **[Save Records 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.

8.2. Sound Meter Real 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.

8.3. 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.

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

8.5. Sound Meter Setting Data
This section is used to set interval into meter.

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

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

Procedure to install USER END SOFTWARE

1. Place the setup disc into the CD-ROM.
2. Double click "Setup.exe" in the CD-ROM.
3. After finishing setup process, go to start--all program-"Data Logger\sound meter "to run the program.