

# ***CHECK MATE***

CM-140

## Instruction Manual

GALAXY AUDIO

**CE**

GCBC CM140-12000

**SOUND LEVEL METER**

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## **I. 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.

### ➤ **Environment Conditions**

- ❶ Altitude up to 2000 meters
- ❷ Relative humidity 90% max.
- ❸ Operation Ambient 0 to 40

### ➤ **Maintenance & Clearing**

- ❶ Qualified personnel should only perform repairs or servicing not covered in this manual.
- ❷ Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on this instrument.

### ➤ **Safety symbols**

 Comply with EMC

When servicing, use only specified replacement parts.

## **II. 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.

- Range from 32dB to 130dB at frequencies between 31.5Hz and 8 KHz.

- Display with 0.1dB steps on a 4-digit LCD.
- Two equivalent weighted sound pressure levels, A and C.
- AC signal output is available from standard 3.5mm coaxial socket suitable for a frequency analyzer, level recorder, FFT analyzer, graphic recorder, etc.

### III. Specifications

Standard Applied: IEC651 Type2, ANSI S1.4 Type2.

Frequency Range: 31.5Hz to 8KHz

Measuring Level Range: 32dB to 130dB

Frequency Weighting: A / C

Microphone: 1/2-inch electret condenser microphone

Display: LCD

Digital Display: 4 digit

Resolution: 0.1dB

Display Update: 0.5 sec.

Time Weighting: FAST (125mS), SLOW (1 sec.)

Level Ranges: Lo: 32 dB to 80 dB

Med: 50 dB to 100 dB

Hi: 80 dB to 130 dB

Accuracy:

$\pm 1.5$ dB ( under reference conditions, 94dB@1kHz )

Dynamic Range: 50 dB

Alarm Function: "**OVER**" is when input is more than upper limit of range.

"**UNDER**" is when input is less than lower limit of range.

MAX / MIN Hold:

Hold readings the Maximum and Minimum Value.

AC Output: 1 Vrms at FS (full scale).

Output impedance: Approx. 100 Ohms

FS: means the upper limit of each level range.

Electromagnetic Compatibility:

RF field = 3V/m

Total accuracy = specified accuracy + 0.5dB

Power Supply:

One 9V battery, 006P or IEC 6F22 or NEDA 1604.

Power Life: Approximately 70hours (Alkaline Battery)

Operation Temperature: 0 to 40 (32 to 104 )

Operation Humidity: 10 to 90%RH

Storage Temperature: -10 to 60 (14 to 140 )

Storage Humidity: 10 to 75%RH

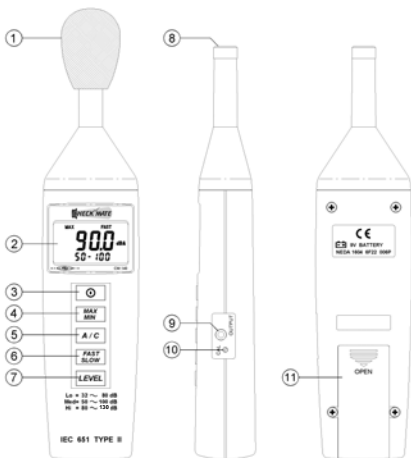
Dimensions: 9.1" L x 2.1" W x 1.3" H

23.1 cm x 5.3 cm x 3.3 cm

Weight: 170kg (0.37 lbs) (including battery)

Accessories: 9V battery, instruction manual, and  
windscreen.

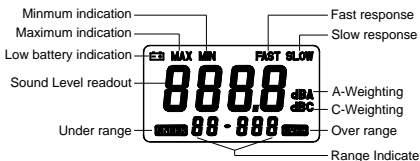
## IV. Name And Functions



### 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 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, and press again to select current value with "MAX MIN" " enunciator blinking.

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

**Note: If change sound level range or change A-C weight, the MAX.MIN mode will clear.**

**⑤ 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, there is a large amount of low-frequency noise)

**⑥ Time Weighting Select Button.**

FAST: for normal measurements

SLOW: for checking average level of fluctuating noise.

**⑦ 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 circular manner.

**⑧ Microphone**

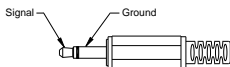
1/2 inch Electret condenser microphone

⑨ **AC Output Terminal**

1 Vrms Corresponding to each range step.

Output impedance: 100 ohms

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



⑩ **CAL Potentiometer**

Calibration control, for level calibration adjustment.

⑪ **Battery Cover**

## V. Calibration Procedures

Using a standard Acoustic Calibrator  
(94dB, 1KHz Sinewave)






- (1) Make the following switch settings.  
Display: dBA  
Time Weighting: FAST  
Measurement Mode: MAX/MIN Mode function disable.  
Level Range: 50 to 100dB
- (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.  
All our products are well calibrated before shipment.  
Recommended Recalibration cycle: 1 year.

## VI. 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, this symbol  will appear.

Replace 9 Volt battery.

## VII. Operating Precautions

- (1) Wind blowing across the microphone will bring additional extraneous noise.

When using the instrument in the presence of wind, it is a must to mount the windscreen to not pick up undesired signals.

- (2) Calibrate the instrument before operation if the instrument was not in use for a long time or operated in bad environment.

humidity environment when not in use.

- (3) Do not store or operate the instrument at a high temperature or in a high humidity environment.
- (4) Keep microphone dry and avoid severe vibration.
- (5) Take out the battery and keep the instrument in a low

## VIII. Measurement

- (1) Open battery cover and install a 9V battery in the battery compartment.
- (2) Turn power ON 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 desired level.
- (4) Hold the instrument comfortably in hand 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 weightings and ranges.  
Press the MAX/MIN button 2 seconds to clear the MAX/MIN reading. " MAX/MIN " symbol disappears.
- (6) Turn OFF the instrument.





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