

OMEGA

HHSL1
SOUND LEVEL METER



OMEGAnetSM On-Line Service
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Czech Republic:

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6311114
e-mail: czech@omega.com

INTRODUCTION

This instrument is a portable easy use 3½ digit, compact-sized digital sound level meter designed for simple one hand operation, and can be mounted on a tripod for long-term measurement. Meter with A and C frequency weighting of the RMS signal, F and S time weighting and maximum level indication.

SAFETY INFORMATION


It is recommended that you read the safety and operation instructions before using sound level meter.

1. The sound level meter must be protected from shocks and vibration as it is a precision instrument.
2. The microphone in particular must be protected from exposure to water or dust. The unit should also not be stored in locations with high temperatures or humidity.
3. Dust or contamination can alter the performance characteristics of the unit. Always replace the unit in its carrying case when not in use.
4. The microphone cover at the tip of the unit is not designed to be removed. Do not try to disengage the cover. Cleaning the microphone is not advisable.

SPECIFICATIONS

GENERAL

Display: 3½ digit liquid crystal display (LCD) with maximum reading of 1999.

Low battery indication: The "  " is displayed when the battery voltage drops below the operating level.

Measurement rate: one times per second, nominal.

Operating Environment: -10°C to 50°C at < 90% relative humidity.

Storage Temperature: -20°C to 60°C, 0 to 80% R.H. with battery removed from meter.

Battery: 4 pcs 1.5V (AAA size).

Battery Life: 50 hours typical.

Dimensions: 217mm(H) x 44mm(W) x 40mm(D).

Weight: 168g including batteries.

Accessories: Windscreen x1, Battery x4, Plug x1,
Tripod mounting screw-nut x1,
Carrying case x1

ELECTRICAL

Applicable Standard: IEC 651-1979 Type 2
ANSI S1.4-1983 Type 2
JIS C 1502

Measurement Range: Lo - range 35-90 dB
Hi - range 75-130 dB

Resolution: 0.1dB.

Frequency Weighting: A and C according to IEC 651 Type 2.

Frequency Range: 31.5 Hz to 8000 Hz.

Detector: True-RMS with independent frequency weightiness.

Dynamic Range: 55dB.

Maximum Hold decay time: <1dB/3minute with Reset switch.

Time Weighting: S(SLOW) and F(FAST) according to IEC 651 Type 2.

Microphone: 1/2" electret(pre-polarized) condenser microphone.

DC Output: Output - 10 mV/dB.

Output Impedance - 50 Ω approx.

AC Output: Output - 1V RMS corresponding to the top of the selected measurement range.

Output Impedance - 600 Ω approx.

Warm-up: <5s

Calibration Conditions: Reference Frequency: 1000 Hz.
Reference SPL: 94 dB.
Reference Temperature: 20°C.
Reference RH: 65%.
Reference Range: 75-130dB.
Reference Direction of incidence: Frontal.

Environmental Effects

Effect of Temperature: <0.5dB (-10°C to 50°C).

Effect of Humidity: <0.5dB for 30%<RH<90% (at 40°C, 1KHz).

OPERATING INSTRUCTIONS

1. **Setting the Measurement Range**

Slide switch "O(power-off) / Lo(35-90dB) / Hi(75-130dB)".

The meter have 2 sound pressure level(SPL) measurement ranges each with a dynamic range of 55dB.

The sound pressure level indication is updated every one second.

If OVER or UNDER is continuously shown, change the setting of the power-range slide switch to a suitable range.

2. **Setting the Time Weighting**

Slide switch: S(SLOW) / F(FAST)

The time weightiness available are shown below:

S(SLOW): for normal measurements

F(FAST): for checking average levels of fluctuating noise.

3. **Setting the Frequency Weighting**

Slide switch: A / C.

The available frequency weightiness of the RMS signal are shown below:

A: for general sound level measurement

C: for checking the low-frequency content of a noise
(If the C-weighted level is much higher than the A-weighted level, then there is a large amount of low-frequency noise.)

4. **Setting the Maximum Level Hold**

Slide switch: MAX / RESET

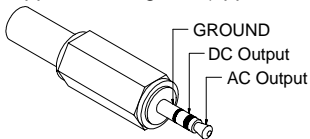
The MAX Hold is used to measure the maximum level of sounds. The maximum measured level is indicated continuously.

To reset the maximum level indication and enter the new measurement, set the slide switch to RESET position.

5. **Using the AC and DC Output Jack**

AC Output: Serves to supply AC signals (approx. 0.55Vrms at the top of the selected measurement range) to external equipment.

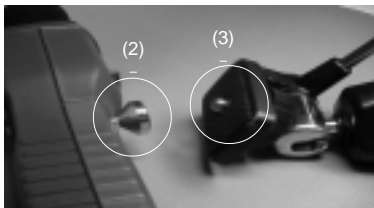
DC Output: Serves to supply DC signals (approx. 10mV/dB) to external equipment.



6. Using the Tripod Mounting Screw-Nut

For long-term measurements, the meter can be mounted on a tripod.

- (1) Remove the screw from the back of the meter.
- (2) Replace the screw by the tripod mounting Screw-Nut.
- (3) Use the tripod mounting screw fixed to the tripod mounting Screw-Nut.



7. Calibrating

- (1) Set the meter slide switch to the Hi-range (75-130dB), A-weighting , F(FAST)-time weighting and RESET positions.
- (2) Fit the sound level calibrator carefully onto the meter and rest the meter on a table or other flat surface. Ensure that the calibrator fits snugly on the microphone.
- (3) Set calibrator at 94dB and 1KHz.
- (4) Switch on the calibrator. The calibrator emits a 1KHz calibration signal.
- (5) Remove the 94dB CAL label from the front of the meter.
- (6) Adjust the calibration control to obtain a reading of 94.0dB.

MEASUREMENT CONSIDERATIONS

1. Background Noise

If the level difference between the absence and presence of the sound to be measured is 10dB or more, the influence of background noise may be disregarded.

If the difference is less, a compensation as shown below should be applied.

Level difference (dB)	4	5	6	7	8	9	10
Compensation value (dB)	-2.2	-1.7	-1.3	-1	-0.8	-0.7	0

2. Reflection

The microphone should be placed well away from reflective surfaces such as walls or the floor, in order to eliminate errors due to reflections. When making sound measurements, hold the meter at arms length. This will help to avoid both reflections from your body and also blocking of sound from some directions.

3. Make sure that nothing obstructs the noise source.

4. Be careful not to accept readings. If the meter is under loaded and overloaded.

MAINTENANCE

Battery Replacement

Power is supplied by four 1.5V (AAA size) batteries. The "🔋" appears on the LCD display when replacement is needed. To replace the batteries, remove the screw from the back of the meter and lift off the battery cover case. Remove the batteries from battery contacts.

Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of 13 **months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. This includes contact points, fuses, and triacs.

OMEGA is glad to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects

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It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient connected application.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. **BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).** The assigned AR number should then be marked on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available **BEFORE** contacting OMEGA:

1. P.O. number under which the product was **PURCHASED.**
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available **BEFORE** contacting OMEGA:

1. P.O. number to cover the **COST** of the repair.
2. Model and serial number of product , and
3. Repair instructions and/or specific problems relative to the product.

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