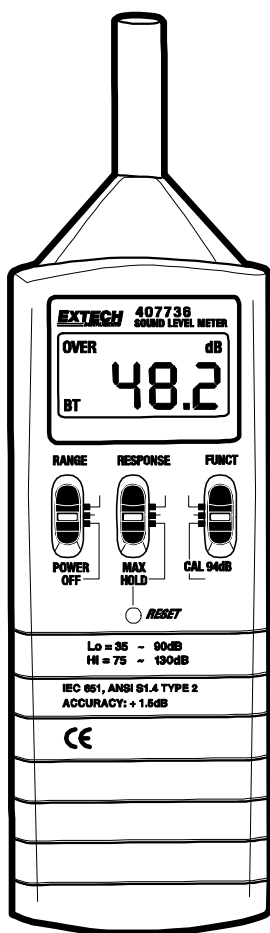# EXTECH® INSTRUMENTS

# Digital Sound Level Meter

MODEL 407736

Introduction

Thank you for selecting the Extech Model 407736. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit the Extech Instruments website (www.extech.com) to check for the latest version of this User Guide.

Meter Description

1. Microphone
2. LCD display
3. POWER OFF & RANGE select switch
4. RESPONSE & HOLD select switch
5. A/C weighting and Calibration switch
6. Calibration adjust screw for 94dB
7. Reset key (resets max hold reading)
8. AC/DC analog output 3.5mm phone jack
9. Battery compartment and Tripod mount are located on the back of meter
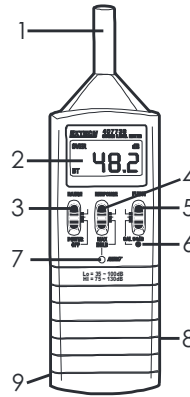
Measurement Considerations

1. Wind blowing across the microphone adds extraneous noise to the measurement. Use the supplied windscreen to cover the microphone when applicable.
2. Calibrate the instrument before each use if possible. Especially if the meter has not been used for a long period of time.
3. Do not store or operate the instrument in areas of high temperature or humidity.
4. Keep meter and microphone dry.
5. Avoid severe vibration when using the meter.
6. Remove the battery when the meter is to be stored for long periods of time.

407736-eu-GB_V2.3   10/14

Meter Operation

Quick Start

1. Power the meter by moving the RANGE switch to the LO or HI position. The meter will begin displaying sound levels. If the LCD does not display, check that the battery is good.

2. Place the meter on a tripod or hold the meter in hand facing the microphone toward the source of the sound to be measured. Note that the tripod mount is on the back of meter.

3. View the measurement on the meter's LCD. An indication of 'OVER' means that the measurement is out of range. Select another measurement range in the event of an over-range condition.

'A' and 'C' Frequency Weighting

Use the FUNCT (function) switch to select 'A' or 'C' frequency weighting. Use 'A' weighting to have the meter simulate the response of the human ear (the human ear boosts and cuts sound levels at specific points over the frequency spectrum). 'A' weighting is used for environmental measurements, OSHA regulatory testing, law enforcement, and workplace design. Select 'C' weighting for flat response measurements (no boosting or dampening across the frequency spectrum). 'C' weighting is suitable for the operational maintenance and analysis of machinery, motors, pumps, engines, etc.

FAST/SLOW Response Time

Use the RESPONSE switch to select FAST (125 ms) or SLOW (1 second) response time. The application at hand (and any directives or standards) will dictate which response to select. For example, most hearing conservation or OSHA related testing is done using SLOW mode and 'A' weighting.

MAX HOLD

In this mode, the meter only updates the LCD when a higher reading than the one presently on the display is detected. Select MAX HOLD using the RESPONSE switch. The LCD shows 'MAX HOLD' in this mode. Press RESET to reset the MAX HOLD reading.

Analog Outputs

The meter includes an AC and a DC analog output for use with chart recorders, dataloggers, etc. The AC output is 0.65V rms full scale per range and the DC output is 10mV per dB per range. The 3.5mm output jack is located on the right side of the instrument. Use a stereo mini-plug as shown in the diagram below to connect the meter to a datalogger or other recorder.

1. Sleeve: ground
2. Ring: DC out
3. Tip: AC out

Calibration Check

Internal Check

This meter provides a built-in calibration adjustment. The calibration adjustment potentiometer is located on the front panel beneath the FUNCT switch. Put the FUNCT switches to the F, Hi, A and CAL 94dB positions and adjust the potentiometer for a display of exactly 94dB. For calibration with an external sound level calibrator, refer to the instructions accompanying the calibrator.

External Calibration

Attach an external sound level calibrator (1kHz at 94.0dB) completely over the microphone.
Set the meter to F, Hi, and A, and adjust the potentiometer for a display of exactly 94.0dB.
If the internal and external settings are not within 1.5dB of each other, the meter will require an internal calibration. Contact Extech
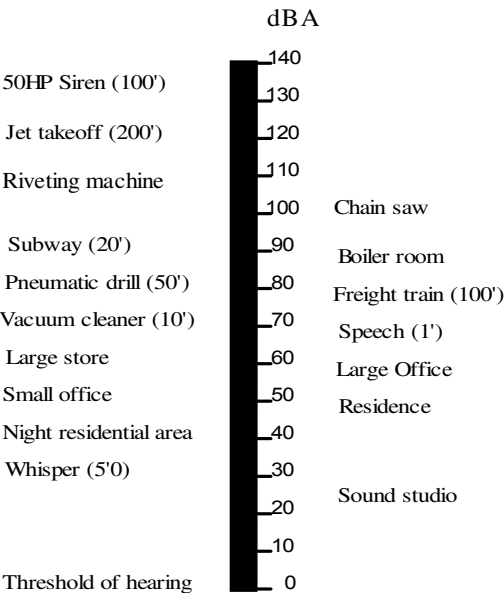
Battery Replacement

When the low battery message appears on the LCD replace the 9V battery as soon as possible. The battery compartment cover resides at the bottom, rear of the meter. Slide the battery compartment cover off, change the battery, and replace the compartment cover.

You, as the end user, are legally bound (**EU Battery ordinance**) to return all used batteries, **disposal in the household garbage is prohibited!** You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

Typical 'A' weighted Sound Pressure Levels

dBA

	140	
50HP Siren (100')	130	
Jet takeoff (200')	120	
Riveting machine	110	
	100	Chain saw
Subway (20')	90	Boiler room
Pneumatic drill (50')	80	Freight train (100')
Vacuum cleaner (10')	70	Speech (1')
Large store	60	Large Office
Small office	50	Residence
Night residential area	40	
Whisper (5'0)	30	
	20	Sound studio
	10	
Threshold of hearing	0	

Specifications

Display	3-1/2 digit (2000 count) LCD
Display update rate	0.5 seconds
Microphone	0.5" Electret condensor
Measurement Bandwidth	31.5Hz to 8KHz
Dynamic range	55dB
Measurement Range	35 to 130dB (Low: 35 to 100; High: 65 to 130dB)
Frequency weighting	'A' and 'C' (selectable)
Applicable standards	IEC-651 & ANSI S1.4 Type 2
Accuracy / Resolution	± 1.5dB / 0.1dB
Maximum Hold decay time	<1dB / 3min
Response time	Fast: 125 milliseconds / Slow: 1 second
Built-in calibration check	1KHz internal sine wave @ 94dB signal is electrical and is injected after the microphone
AC Analog output	0.65VAC rms (full scale); 600 output impedance
DC Analog output	10mVDC / dB; 100 output impedance (approx.).
Power	9V Battery
Battery life	50 hours (typical); Low battery indicator alerts user
Operating temperature	0 to 40°C (32 to 104°F)
Operating humidity	10 to 90% RH
Dimensions/weight	240 x 68 x 25mm (9.45 x 2.68 x 1")/ 210g (6.75oz)