Digital Type 2 Sound Meter

840029

Instruction Manual

SPER
SCIENTIFIC

Environmental Measurement Instruments

Digital Type 2 Sound Meter - 840029
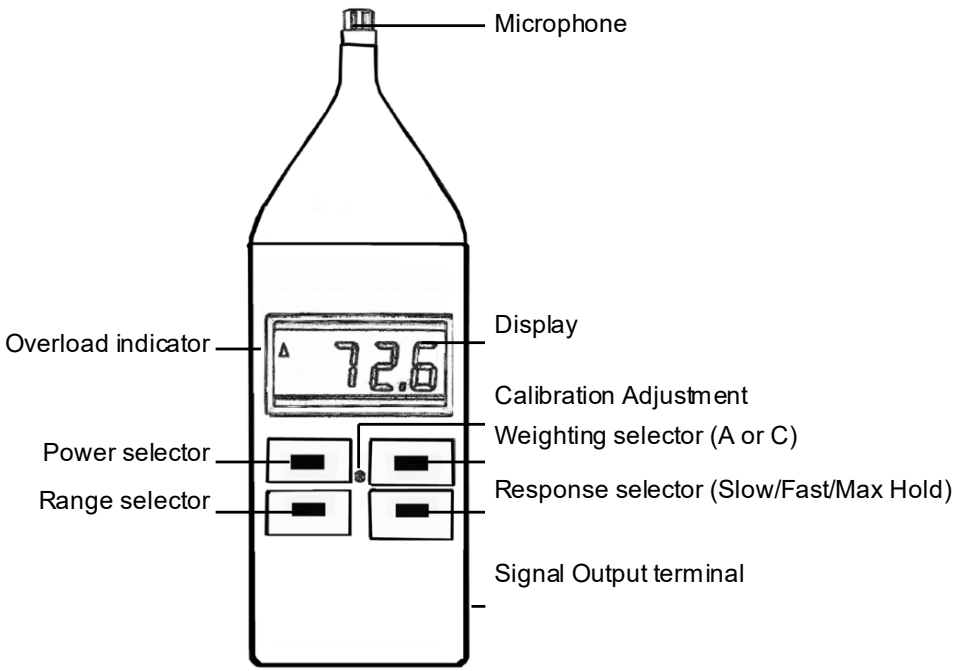
TABLE OF CONTENTS

INTRODUCTION

Perfect for testing for OSHA requirements, your new instrument meets IEC 61672:2013 and ANSI S1.4:2014 frequency and time weighting specifications for a Type 2 sound meter.

It covers the 30 - 130 dB in the "A" scale, and 35 - 130 dB in the "C" scale, with an accuracy of ±1.0 dB. This meter can be acoustically calibrated in compliance with OSHA, using Sper Scientific's Acoustical Calibrator 850016 (or equivalent).

Features include a built-in calibration adjustment, Fast or Slow time weightings, Maximum Hold function, large display with a resolution of 0.1 dB, low battery indicator, and AC or DC output. The instrument has a fold out tripod stand and comes with carrying case, instructions, calibration tool, and a 9V battery.

PANEL DESCRIPTION

Microphone

Overload indicator

Display

Calibration Adjustment

Weighting selector (A or C)

Power selector

Range selector

Response selector (Slow/Fast/Max Hold)

Signal Output terminal

OPERATING INSTRUCTIONS

A. MEASUREMENT PROCEDURES

1. If this is the first use, follow the calibration procedure in section D
2. Slide the **POWER** selector to the ON (AC) or ON (DC) position.
3. Slide the **WEIGHTING** selector to the "A" or "C" position. The "A" frequency weighting simulates human ear response. During an environmental sound level measurement, select the "A" weighting. The "C" weighting approximates a flat response. Typically, "C" is used to check the noise of machinery where the target sound level is already known.
4. Slide the **RESPONSE** selector to the FAST or SLOW position. For general applications, select FAST, which simulates the human ear's response time. The SLOW setting is used to obtain an average of vibrating sound levels.
5. Find the appropriate measuring range using the RANGE selector. If the OVERLOAD INDICATOR (a triangle shape) appears in the upper-left display, slide the RANGE selector to another setting.
6. Point the microphone at the sound source, the sound level will be displayed in decibels (dB).
7. To power off the unit, slide the POWER selector to the OFF position.

B. SETTINGS FOR GENERAL APPLICATIONS

1. Set **POWER** selector to an ON position.
2. Set **RESPONSE** selector to Fast.
3. Set **WEIGHTING** to "A".
4. Set **RANGE** selector to the appropriate range.

C. SIGNAL OUTPUT

1. The 3.5 mm diameter **SIGNAL OUTPUT** terminal may be used to connect the unit to an external output device, such as an analyzer, recorder, or controller.
2. When connecting the meter with an external output device, use the appropriate ON selection (AC or DC).

D. CALIBRATION

The meter's **CALIBRATION ADJUSTMENT** is located on the front panel. The meter has a built-in internal standard of 94 dB/1 KHz. Use the following procedures to calibrate the instrument before operating for the first time, or when the meter has not been in use for awhile. This meter allows two options for calibration.

1) Internal Calibration:

1. Slide the **POWER** selector to an ON position.
2. Slide the **RANGE** selector to the 50 - 100 dB position.
3. Slide the **RESPONSE** selector to FAST.
4. Slide the **WEIGHTING** selector to CAL.
5. Use the calibration screw driver to gently turn the **CALIBRATION ADJUSTMENT** until the display reads 94.0 dB.

2) External Calibration

Use Acoustical Calibrator 850016 (or equivalent) to calibrate the unit.

1. Slide **POWER** selector to an ON position.
2. Power on the acoustical calibrator and place the calibrator onto the Sound Level Meter's **MICROPHONE**.
3. Slide the **RANGE** selector to the 50 - 100 dB position.
4. Slide the **RESPONSE** selector to FAST.
5. Slide the **WEIGHTING** selector to "A".
6. Use the calibration screw driver to gently turn the **CALIBRATION ADJUSTMENT** until the display reads 94.0.

PRECAUTIONS

1. Do not store or operate the unit in high temperatures or in a high humidity environment for long periods.
2. Keep the microphone dry and avoid intense vibrations.
3. Do not force the **CALIBRATION ADJUSTMENT**, doing so may damage the mechanism and void the warranty.

BATTERY REPLACEMENT

Replace the batteries when "BAT" is displayed. Accurate measurements may be made for several hours after the low battery indicator appears.

SPECIFICATIONS

Display	3 1/2 digits, 3/4" LCD
Functions	dB (A and C Frequency Weighting), Response (Fast, Slow), Max. Hold AC/DC Output
Measurement Range	30-70 dB, 60-100 dB, and 90-130 dB 40 dB on each step, with overload indicator.
Resolution	0.1 dB
Accuracy	± 1.0 dB
Frequency	31.5 Hz to 8,000 Hz
Microphone	1/2" condenser microphone.
Response (Fast/Slow)	Fast (F): t = 200 ms
	Slow (S): t = 500 ms
Internal Calibration	Built-in internal calibration on front panel. Internal 94 dB / 1 kHz square wave generator.
Output Signal	AC: 0.5 Vrms corresponding to each range step. DC: 0.3-1.3 VDC, 10 mV per dB. Output impedance is 600 ohm.
Output Terminal	3.5 mm diameter phone jack.
Operating Temp.	32-122°F (0-50°C)
Operating Humidity	Less than 90% RH
Power Supply	One 9V battery, heavy duty or alkaline type.
Power Consumption	Approximately DC 6 mA
Weight	10 oz.
Dimension	8 1/8" x 3 1/8" x 1 3/8"
CE Compliant	Yes
Included Accessories	Instruction Manual, 9V battery, calibration screw driver, and hard carrying case.
Optional Services & Accessories	840029C NIST Traceable Cert. of Calibration 850016 Acoustical Calibrator 840091 Wind Screen

RESPONSE (Fast and Slow) CHARACTERISTICS

Fast	Reading is maximum value at 0.2 seconds
Slow	Reading is maximum value at 1.5 seconds

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) years** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.
8281 East Evans Road, Suite #103
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.

Please note: The most current version of the manual can always be found at www.sperdirect.com