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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Sound Level Calibrator

CAL601 CLASS 1

User's Manual



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1. INTRODUCTION

The CAL601, Sound Level Calibrator, is used for the calibration of the pressure sensitivity of the microphone and sound level measuring equipment. The design of CAL601 is based on a feedback arrangement to ensure a high stable sound pressure level. The performance is very stable; it does not required for the revision to the microphone equivalent volume. CAL601 conforms to the standard of IEC60942 (2003) Class 1.

2. EQUIVALENT FREE-FIELD

Usually we use the free-field microphone more than others. For example, when use the CAL601 to calibrate the sound level meter and other environmental noise measuring equipments need to revise the pressure-field to the equivalent free-field. The corrected value is the difference between the pressure-field response and free-field response when at 1000Hz. The value for the 23.77mm (1 inch) microphone is -0.4dB , and for the 12.7mm (1/2 inch) microphone is -0.2dB .

Also the equivalent free-field for the 23.77mm (1 inch) microphone is 93.6dB , and for the 12.7mm (1/2 inch) microphone is 93.8dB .

3. SPECIFICATIONS

Standard: IEC 60942(2003) and ANSI S1.40 (1984)

Sound Pressure Levels : 94 and 114dB (reference of $2 \times 10^{-5}\text{Pa}$) .

Accuracy: $94 \pm 0.3\text{dB}$ and $114 \pm 0.5\text{dB}$.

Frequency : $1000\text{Hz} \pm 1\%$.

Distortion : $\leq 1\%$.

Battery : 9V 006P or IEC6F22 or NEDA 1604.

Dimension : $\varphi 53 \times 117$ (mm) .

Weight : about 250g (included 1/2" adaptor and 9V battery) .

Stable Times : 3s .

Operating Temperature : $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$ ($14^{\circ}\text{F} \sim 122^{\circ}\text{F}$).

Storage Temperature: $-25^{\circ}\text{C} \sim 0^{\circ}\text{C}$ ($-13^{\circ}\text{F} \sim 158^{\circ}\text{F}$).

Humidity : $< 90\%$.

Atmospheric Pressure : $65\text{KPa} \sim 100\text{KPa}$

Accessories : 1/2" (12.7mm) adaptor 、 user's manual x1 、 calibration certificate x1

4. OPERATING INSTRUCTIONS

1. Turn the power on, the LED will be lightened and the meter emits a sound.
2. Insert the 1/2 inches microphone to the hole of ST110 Sound Calibrator until you hear a "click" sound. (refer to Fig. 1)
3. Select the sound level of 94dB or 114dB. Press "ON" it supplies 94dB. Press ON and +20dB simultaneously, it supplies 114dB.
4. Read the value on the sound level meter's display and perform the calibration
5. Extract the microphone.
6. The calibrator will be power-off automatically after 1 minute.



Fig. 1

5. CALIBRATION AND ADJUSTMENT

If calibration out of specification, you can calibrate and adjustment it:

1. Unscrew completely the metal silver battery cover.
2. Uses a small screw driver trimming interior variable resistor until attain a designated standard the accurate 94dB normal value.



CAUTION

When verification should use the pressure field response laboratory scale microphone as well as the precision measurement amplifier carries on the measuring. Does not need to 114.0dB to carry on the adjustment.

6. BATTERY REPLACEMENT



CAUTION

The battery voltage should maintain more than 5.5V,when use, after lets loose the pressed key, the sound presses the adjuster to be supposed to maintain works a minute .If only can work for several seconds or does not work, then the battery lower, should replace the battery

1. Unscrew completely the metal silver battery cover.
2. Remove the battery.
3. Replace the battery with a new one of the same type.



Description Of Calibrator

1. Metal silver battery cover.
2. Power ON red LED.
3. Power ON and -20dB button.
4. $1/2$ " adapter.
5. 0.936 " internal cavity of calibrator.

Fig. 2

7. CLEANING

- To clean the instruments use a soft dry cloth. Never use a wet cloth, solvents or water.

8. END OF LIFE



Caution: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal

9. ENVIRONMENT CONDITIONS

- For inside use, max height: 2000m
- Reference temperature: $23^{\circ} \pm 5^{\circ}\text{C}$
- Operation temperature: $5 \sim 40^{\circ}\text{C}$
- Operation humidity: $<80\% \text{ RH}$
- Storage temperature $-10 \sim 60^{\circ}\text{C}$
- Storage humidity $<70\%$

10. EMC

This instrument was designed in accordance with EMC Standards in force and its compatibility has been tested in accordance with EN61326-1 (2006).

11. ACCESSORIES

- Meter: CAL601
- User's manual.
- Carrying case.
- 1 battery 9V 006P or IEC6F22 or NEDA 1604.

ANAHEIM SCIENTIFIC

22820 Savi Ranch Parkway, Yorba Linda, California 92887
Phone: 714.921.9095 | www.anaheimscientific.com

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