

850012 (ST-120)

2-Pt. Acoustical Calibrator  
Class 1

USER MANUAL



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## **1. INTRODUCTION**

The ST-120, Sound Level Calibrator, is used for the calibration of the pressure sensitivity of the microphone and sound level measuring equipment. The design of ST-120 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. ST-120 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 ST-120 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  $-0.4\text{dB}$ , and for the 12.7mm (1/2 inch) microphone is  $-0.2\text{dB}$ .

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

### 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 :  $\leq 3\%$ .
- Battery : 9V 006P or IEC6F22 or NEDA 1604.
- Dimension :  $\varphi 62 \times 134$  ( mm ) .
- Weight : about 350g ( included 1/2" adaptor and 9V battery ) .
- Stable Times : 20s.
- Operating Temperature :  $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$  ( $32^{\circ}\text{F} \sim 104^{\circ}\text{F}$ ).
- Storage Temperature :  $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$  ( $14^{\circ}\text{F} \sim 140^{\circ}\text{F}$ ).
- Humidity :  $< 90\%$ .
- Atmospheric Pressure :  $65\text{KPa} \sim 100\text{KPa}$
- Accessories : User's manual x1 、 Calibration certificate x1

## 4. OPERATING INSTRUCTIONS

1. Insert the 1/2 inches microphone to the hole of ST120 Sound Calibrator until you hear a "click" sound. (refer to Fig. 1)
2. Select output dB level and turn on power, LED will be lightened and the meter emits a sound.
3. Read the value on the sound level meter's display and perform the calibration
4. Extract the microphone.



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(VR1) 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

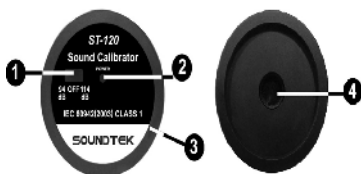
The battery voltage should maintain more than 7V, when the LED flash, please change battery soon.



### CAUTION

If you not use this product for a long time , please remove 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. Power & output level select switch .
2. Low battery indicator .
3. Battery cover.
4. 1/2" adapter.

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:  $23^{\circ} \pm 3^{\circ}\text{C}$
- 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: ST-120.
- User's manual.
- Carrying case.
- 1 battery 9V 006P or IEC6F22 or NEDA 1604.





## **WARRANTY**

Sper Scientific warrants this product against defects in materials and workmanship for a period of **one (1) year** 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 break the waterproof seal and 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](http://www.sperwarranty.com) within 10 days of purchase.