AWA6021A Sound Calibrator

User Manual

Contents

1 Overview

AWA6021A sound calibrator is mainly used for the sensitivity calibration of measuring microphones and acoustic measuring equipment. It is small, light, stable and easy to operate and has automatic compensation of air pressure. Its performance complies with technical requirements for class 1 sound calibrator of GB/T 15173-2010 and IEC 60942: 2017.

2 Major technical specifications

2.1 Standards:GB/T 15173-2010 and IEC 60942:2017

2.2 Sound pressure level: 114.0dB and 94.0dB (based on 2×10^{-5}Pa)

2.3 Sound pressure level error: ±0.25 dB

2.4 Frequency: 1000.0 Hz；error:±0.7 %

2.5 Harmonic distortion: ≤1.0 %

2.6 Overall distortion: ≤2.5 %

2.7 Operating voltage range: 2.2 V ~ 3.4 V

2.8Battery: 2×1.5 V alkaline battery LR6 (AA); maximum continuous operating time: 7h

2.9 Size: 72 mm×72 mm×42 mm

2.10 Stabilization time: <15 s

2.11 Operating environment

Temperature range: -10°C ~ +50°C

Relative humidity: 25 % ~ 90 %

Atmospheric pressure: 65 kPa ~ 108 kPa

3 Structural features

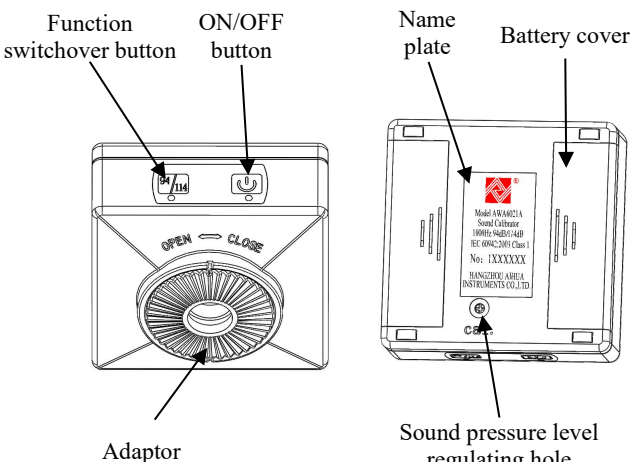

Figure 1 Calibrator Structural Diagram

4 Operation and maintenance

4.1 Equivalent free-field sound pressure level

AWA6021A sound calibrator generates 114.0 dB or 94.0 dB sound pressure level with a frequency of 1000.0 Hz in the coupled cavity. It should be corrected when used to calibrate free-field microphones (including various sound level meters and ambient noise measuring instruments). When the correction value is 1000.0 Hz, the difference between sound pressure response and free field response is -0.4 dB for microphones of Φ23.77 mm (1'') and -0.2 dB for microphones of Φ12.7 mm (1/2''). Namely, the calibrated instrument should display 93.6 dB when a 1'' free-field microphone and the instrument operating it are calibrated and display 93.8 dB when a 1/2'' free-field microphone and the instrument operating it

are calibrated.

Note: Since the microphones are not identical in structure, the equivalent free-field sound pressure level correction value changes according to the specific model and is subject to the specific microphone manufacturer.

4.2 Operating method

Press and hold the ON/OFF button on the calibrator for 1s and release it. The calibrator starts generating sound, the red starts flashing. Then, set the plummet of the calibrator on the microphone under test and keep stable. When the red indicator in the calibrator button stops flashing, it indicates the sound pressure level in the calibrator is kept stable at 94.0 dB.

4.3 Use of the sound pressure level of 114.0 dB

When the red indicator in the calibrator stops flashing, again press and hold the button “94/114” on the calibrator for 1s and release it. The green indicator in the button is on and then the red indicator starts flashing. When the indicator stops flashing, it indicates the sound pressure level in the calibrator is kept stable at 114.0 dB. Press the ON/OFF button again and the calibrator is switched off.

4.4 Automatic shutdown

When calibration of the microphone under test is finished, if the microphone is removed from the adaptor, leaving open the mouth of the adaptor for sound emission, the calibrator continues giving sound for approx. 5s and then automatically shuts down.

4.5 Replacement of battery

If the calibrator only works for several seconds or it automatically shuts down when the green indicator is on for 2s, it indicates low battery power and the need for battery replacement.

Replacement method:

(1) Remove the two rear covers and then the two LR6 batteries;

(2) Install two new LR6 batteries and then the rear covers.

4.6 Calibration of microphones of other sizes

For the calibration of 1'' microphones, the adaptor should be backed out along the "OPEN" direction of the housing. For the calibration of 1/4'' microphones, an AWA8532 sound calibrator adaptor

should also be provided.

4.7 Regular calibration

The sound calibrator should be regularly (for instance: every year) sent to the relevant department of metrology for calibration, to keep the sound pressure level accuracy.

4.8 Precautions for use

(1) Promptly shut it down after use, to prevent automatic shutdown failure due to blocked coupled cavity.

(2) Method for fine adjustment of sound calibrator: It can be realized by adjusting the potentiometer below the name plate of the calibrator with a small screwdriver. There is no need for adjustment since it is generally adjusted at the factory.

(3) Disassembly is not allowed by persons other than maintenance staff.

(4) Remove the batteries when the instrument is not to be used for a long time.

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