

IEC60942: 2017 class 1 (BAC3)

IEC60942: 2017 class 2 (BAC4)

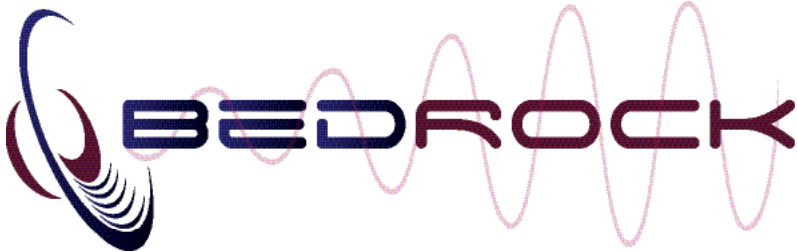
ANSI S1.4



Bedrock BAC3 / BAC4

acoustic calibrators

Operating manual



Contact information and support

The Bedrock BAC3 and BAC4 acoustic calibrators, are manufactured under the responsibility of Bedrock Audio BV.

The manufacturer can be contacted at the following address:

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Updates of this manual and other product documentation are released online:

www.bedrock-audio.com/support

Where this manual refers generically to the Bedrock BAC_x, the corresponding text applies to device models BAC3 and BAC4 (NOT BAC1 or BAC2).

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1. Introduction

Congratulations on purchasing your Bedrock BACx acoustic calibrator. With this calibrator, you are able to do fast, reliable and accurate calibrations on the go. Together with any Bedrock sound level meter, you can rest assured that your measurements will be as precise as possible.

Using the BACx you can calibrate 1" diameter microphones directly and 1/4" or 1/2" microphones using the 1/4" or 1/2" adaptor respectively supplied with the calibrator. With available adaptors, you can calibrate other microphones and instruments. Additionally, with the flip of a switch you can adjust the calibration tone level either to 94 dB or 114 dB. Note that the use of the BACx does not take away the need for periodic testing of your measuring instrument as described in IEC-61672-3. We recommend to have your Bedrock sound level meter tested by the manufacturer or an accredited laboratory at least once every two years.

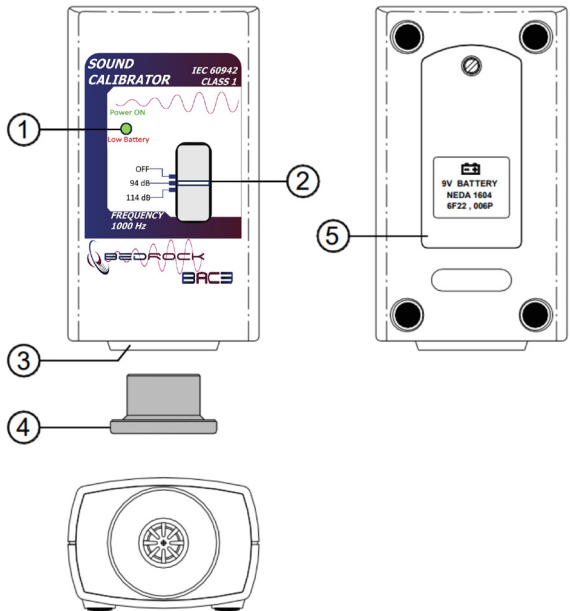
1. Power and low battery indicator LED

2. Power and output level select switch

3. Transducer assembly 1/2" cavity for microphone insertion

4. 1/4" microphone adapter

5. Battery cover



2. General use and safety precautions

Your Bedrock BACx is a high-precision reference instrument designed to provide stable calibration for your measurement devices. To ensure that your calibrator maintains its accuracy and reliability over the long term, we strongly recommend handling the BACx with care. Specifically, we recommend taking the following precautions:

- Protect the BACx from dropping, shock and vibration.
- Only operate at an altitude up to 2000 meters.
- Only operate at ambient temperatures between 0°C and 40°C.
- Do not use close to flames or open fire.
- Do not use in environments where flammable or explosive materials may also be used.
- Do not expose the calibrator to rain, moisture, humidity greater than 90% or liquids of any kind. Take special care to prevent liquids to permeate into the equipment through the connectors.
- Do not keep the device powered on while unattended for prolonged periods of time.
- Make sure that the device is switched off before transportation and storage.
- During transportation and storage, keep the device in a suitable casing or container – preferably its original case. The device needs to be protected from shocks and vibration (due to transportation or falling), excessive temperatures, liquids and moisture, and any other external conditions that could do damage to the device.

When servicing, use only specified replacement parts.

3. Operation

3.1. Pre-operation check

1. Remove the battery cover and install a fresh 9V battery into the compartment, ensuring correct polarity.
2. Before performing a calibration, verify the device status:
 - Slide the power switch from OFF to the 94 dB position.
 - Operation may begin once the LED glows green. If the LED does not light up or appears dim, replace the battery immediately.
 - Switch from 94 dB to 114 dB. The sound pressure level will increase by 20 dB. This higher setting is recommended for checking linearity or performing calibrations in environments with high background noise

3.2. Calibrating an acoustic measuring instrument



External noise or vibration may interfere with the calibration process, potentially leading to inaccurate readings. This effect is particularly pronounced when using the lower 94 dB reference level.



Ensure the calibrator's cavity matches the microphone diameter. Use the 1/4" or 1/2" adapter for 1/4" or 1/2" microphones respectively. For 1" microphones, use the cavity directly. Attempting to force an incompatible microphone may cause permanent damage to both the calibrator and the microphone.

1. Place the calibrator firmly over the microphone of the instrument being calibrated. Ensure the microphone is inserted straight and forms a tight acoustic seal.
2. On your Bedrock sound level meter, navigate to the "calibration" module.
3. Ensure there is minimal interfering ambient noise.
4. Set the BACx to 94 dB (Bedrock sound level meters are calibrated with a 94.0 dB reference level)
5. Press "start" and wait until your sound level meter has finished the measurement.
6. Choose to either accept (save) your measured calibration factor or reject the value and restart the calibration procedure.
7. Once the calibration is complete, slide the power switch to "OFF", and carefully remove the calibrator from the microphone.

3.3. Changing the battery

The BACx acoustic calibrators use a single 9 V alkaline battery. This type of battery is known as NEDA 1604, 6F22 or 006p. It is also commonly known as PP3.

To replace the battery:

1. Unscrew the screw holding the battery cover on, using a screwdriver.
2. The battery, type 6F22 (PP3) can now be eased out of its holder and replaced.

The battery should be eased out terminal side first by pushing against the spring at the other end. Ensure that the battery is inserted with the correct polarity with the negative terminal at the contact with the larger cutout.

3.4. Battery type

The battery should be an alkaline battery, not an ordinary dry cell. The battery is 9 volts when new and will operate the calibrator down to 6.4 volts. When the battery voltage is below 6.6 volts but above 6.4 volts, the power LED will flash to indicate that the battery voltage is low. When the battery voltage is below 6.4 volts the calibrator will not turn on. A discharged battery may allow switch-on but will soon drop in voltage and indicate low battery or switch off.

4. Technical specifications

Frequency	1000 Hz \pm 0.7%
Sound level	BAC3 - 94 \pm 0.25 dB / 114 \pm 0.25 dB BAC4 - 94 \pm 0.4 dB / 114 \pm 0.4 dB
Standards compliance	BAC3 - EN/IEC 60942:2017 Class 1 BAC3 - ANSI S1.4 Type 1 BAC4 - EN/IEC 60942:2017 Class 2 BAC4 - ANSI S1.4 Type 2
Operating humidity	10% to 90% relative humidity (non-condensing)
Operating static pressure	65 to 108 kPa
Operating temperature	-10°C to +50°C
Distortion	BAC3 - <2% BAC4 - <3%
Microphone size	1" 1/2" and 1/4" with supplied adapter
Reference conditions	Temperature: 23°C(73°F) Static pressure: 103 hPa Relative humidity: 50%
Battery	1 x 9v 6F22 (Neda 1604)
Battery life	Approx. 40h
Battery test	Internal circuitry checks the condition of battery continuously. Calibrator will not be operated when green LED turns to red LED, which means that battery voltage has fallen below the acceptable range.
Mass	Approx. 170 g (incl. battery)
Dimensions	Approx. 63 x 113 x 44 mm (WxLxH)
Bundled items	Leather travel casing for calibrator, calibration certificate. 1/2" and 1/4" adapters.