

Product Information

Battery Impedance Simulator Type BS-01

APPLICATIONS:

- Hearing Aid Testing
- Current Drain Measurement

FEATURES:

- Small Size
- Standard Battery Pill Cable connection
- 8 Different Batteries Simulated
- Simple to Use and Configure

OVERVIEW

The BS-01 Battery Impedance Simulator was developed for R&D and Production testing of hearing aids. It is designed to accurately simulate the electrical impedance of a hearing aid battery in an automated test system. The BS-01 enables accurate measurements of the current drain of a hearing instrument to be performed. It simulates the 8 most common battery types and fulfills both ANSI S3.22 and IEC 60118-7.

Description

The CJS Labs Type BS-01 is a convenient, low impedance resistance substitution box intended for R&D and production testing of hearing aids. An accurate simulation of the battery resistance is required when substituting a real battery with a DC power source during testing. The most critical test is the measurement of current drain, as this directly impacts the battery life. All other standardized tests are generally performed with a constant DC supply of 1.3 volts fed through the appropriate resistance for the substituted battery. In addition, the effects of varying the supply voltage on the device response can also be measured using the BS-01.

The battery type / impedance is selected via the front panel rotary switch. The BS-01 is equipped with both a BNC connector and a standard 3.5mm miniature phone jack. Although the connections are completely reversible, the BNC connector is generally connected to the DC power supply and current sensor while the miniature phone jack connects directly to commercially available battery pill cables.



The maximum input voltage for the BS-01 is 1.4V RMS DC. The maximum input current is 175mA RMS DC. The BS-01 fulfills both IEC 60118-7 and ANSI S3.22.



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Product Information

Resistance and Maximum Input

The BS-01 simulates the various battery types shown in Table 1.

Battery Type	Resistance
Zinc Air 5A (PR521)	8.2 Ω
Zinc Air 10A (PR 70)	6.2 Ω
Zinc Air 312 (PR 41)	6.2 Ω
Zinc Air 13 (PR 48)	6.2 Ω
Zinc Air 675 (PR 44)	3.3 Ω
Silver 76	5.1 Ω
Silver 13	8.2 Ω
Silver 312	10 Ω

Table 1. Standard battery types and impedances.

Application and System Configuration

In an automated test system, the BS-01 is inserted in series after the DC power supply and current sensor (e.g., Listen, Inc. DC Connect™). A battery pill cable (e.g., Frye Electronics 059-2005-02 (13A)) is used to apply the power to the hearing aid under test and measure the current drain. A typical system configuration is shown in Fig. 1. Without the Battery Impedance Simulator, errors on the order of 10% in the measurement of current drain can occur with a typical DC voltage source ($Z_{OUT} = 0\Omega$). Standard battery current drain with the specified input signal, as well as the effects of varying supply voltage can be measured with the BS-01.

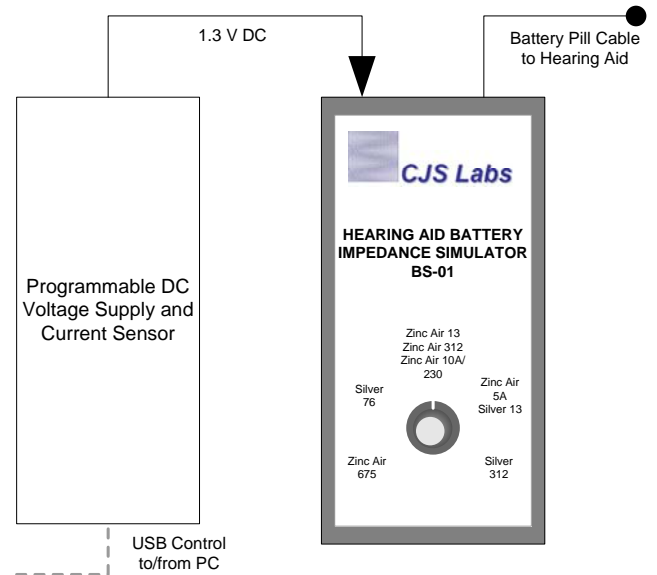


Fig. 1 Measurement system configuration for testing hearing aids using the BS-01 and a programmable voltage supply.

Technical Specifications

IMPEDANCE:

3.3, 5.1, 6.2 or 10 ohms \pm 5%, user selectable, as per IEC 60118-7 and ANSI S3.22

Ordering Information:

Option -T

Tabs for securing the unit to a test bench or Test station (order BS-01-T)

POWER HANDLING at 20 °C (68°F):

¼ W 8.2 Ω & 10 Ω
 ½ W 6.2 Ω
 1 W 5.1 Ω & 3.3 Ω

DIMENSIONS:

Length: 14 cm (5.5 in)
 Width: 6.2 cm (2.4 in)
 Height: 5.8 cm (2.3 in)

WEIGHT:

119 g (0.26 lbs)



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