

# ABS1

AUDIO BIT SPITTER  
PORTABLE DIGITAL/ANALOG AUDIO GENERATOR



by Ward-Beck Systems

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# ABS1 AUDIO BIT SPITTER

## General

The **Audio Bit Spitter** is a companion to the successful ABB-1 (Audio Bit Buddy™) portable digital/analog audio monitor. This portable, battery powered unit generates digital and stereo analog audio test signals that may be injected into the signal path when testing device performance or signal path continuity with an Audio Bit Buddy™, WBS POD11 Digital Audio Meter, WBS M445 Extended Range Meter/Monitor or any other audio monitor or metering device.

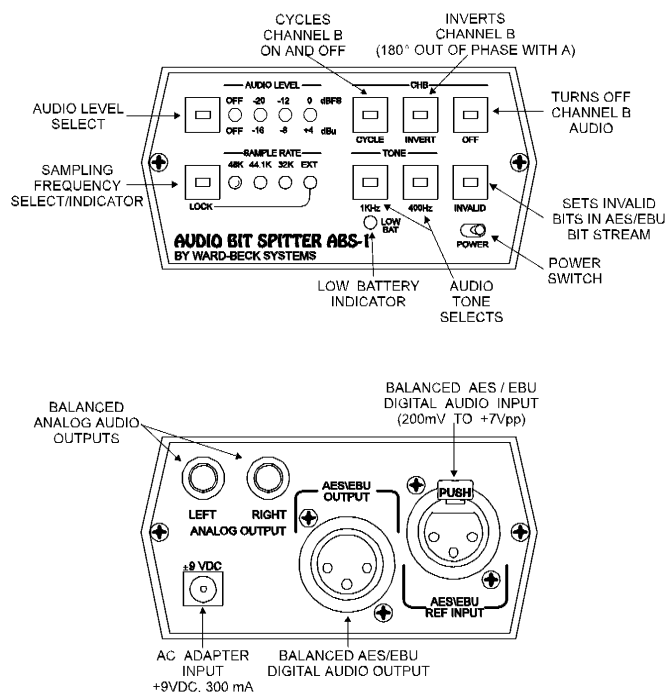
The **ABS-1** generates an AES/EBU digital audio signal, 1kHz or 400Hz, at the three most commonly used sampling rates of 48kHz, 44.1kHz or 32kHz. The unit may also be synchronized to an external digital reference signal. Digital signal levels of -20, -12 and 0 dBFS are front panel selectable. Stereo analog tones of 1kHz or 400Hz may also be selected at levels of -16, -8 and +4 dBu.

To distinguish between the CH A and CH B (left and right) signals, the unit provides the option to cycle and/or invert the CH B (right) signal or to turn it off completely. A send invalid function on the **ABS-1** sets invalid bits in the AES/EBU bit stream.

Powered by four rechargeable AA Ni-Cad cells and equipped with a belt clip, the **ABS-1** is always ready to go. For bench work, the unit may also be powered via an AC adapter. With the AC adapter plugged in, the batteries recharge while in use.

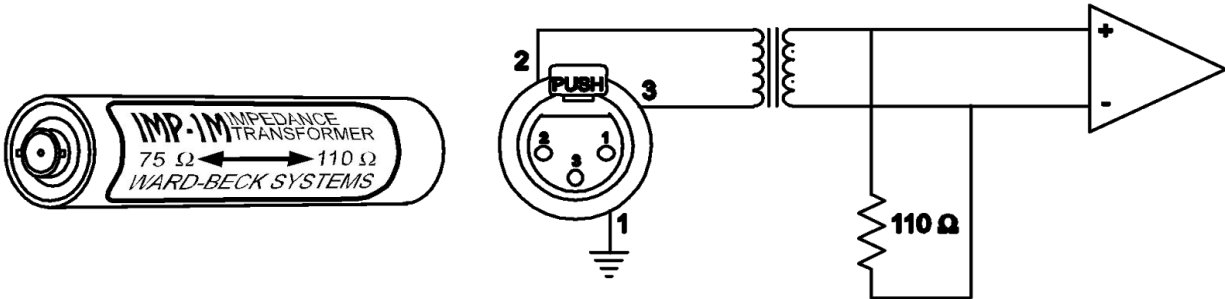
Balanced, 110Ω, AES/EBU connections are made via the appropriate XLR-3 type connectors located on the rear panel. For unbalanced 75Ω circuits, use WBS in-line impedance converters, IMP-1F for the digital signal output and a WBS IMP-1M for the external reference input. Balanced, low output impedance, stereo analog audio signals are provided on two tip-ring-sleeve jacks.

## Operational Features

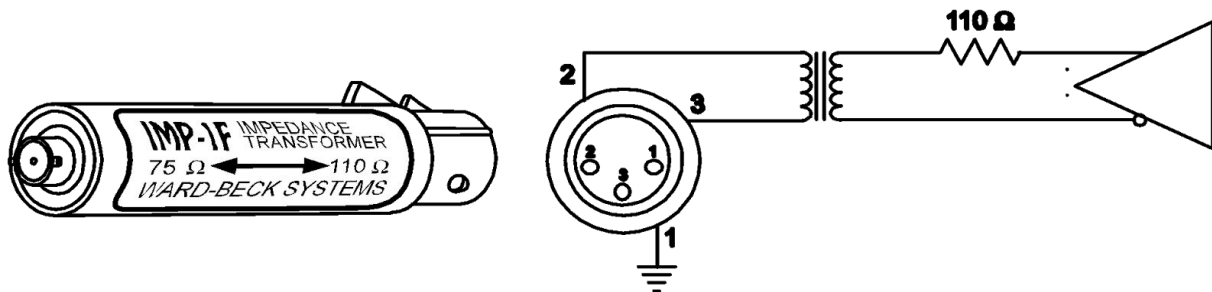


## CONNECTING TO THE BIT SPITTER

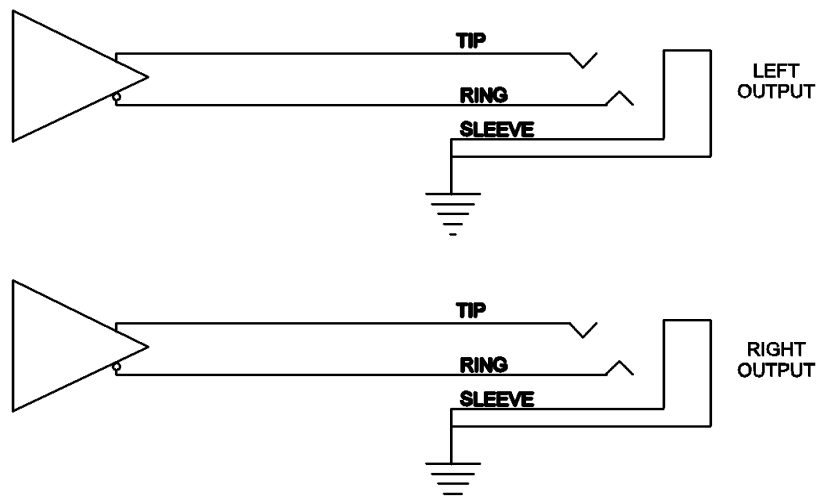
The ABS-1 uses a 3-pin XLR for an input and output connector and is wired as shown below. The input and output impedances are  $110\Omega$  balanced. If unbalanced 75 ohm monitoring is required, Ward-Beck offers a full line of impedance matching products. As shown below, the IMP-1M and IMP-1F are single in-line impedance converters which will match 75 ohm lines to the 110 ohm input and output of the ABS-1.



BALANCED DIGITAL AUDIO REFERENCE INPUT



BALANCED DIGITAL AUDIO OUTPUT



ANALOG AUDIO OUTPUT

## **OPERATIONAL CONTROLS AND TALLIES**

All controls and tallies are located on the front panel of the Audio Bit Spitter.

When the POWER toggle switch is first turned on the unit defaults to:

AUDIO LEVEL - OFF  
SAMPLE RATE - 48kHz  
TONE - 1kHz

### **AUDIO LEVEL**

The Bit Spitter generates an AES/EBU digital audio bit stream and stereo analog audio signal simultaneously. The analog signal level tracks the selected digital data level. Selections of -20dBFS (-16dBu), -12 dBFS (-8dBu) and 0dBFS (+4dBu) are made by repeatedly operating the level select switch.

NOTE : The ABS-1 mutes the audio output when the level push button is operated; this allows you to cycle past audio levels without actually outputting high level audio.

### **SAMPLE RATE**

Sampling rate selections may be made for 48K, 44.1K and 32K by operating the sample rate select switch. If it is desirable to synchronize the Bit Spitter to an external reference, select EXT by operating the sample rate select switch. The Bit Spitter is designed to lock to reference signals over the range from 30 to 50kHz. If the external sampling frequency matches 48, 44.1 or 32kHz, the appropriate LED on the front panel will illuminate. The LED in the sample rate select switch will illuminate when the Bit Spitter is locked to the external reference.

### **AUDIO TONE**

Audio tones of 1kHz or 400Hz may be selected by depressing the appropriate pushbutton. When using an external reference, please note that the frequency of the digitally generated tones will be accurate at the "standard" sampling rates of 48, 44.1 and 32kHz. There will be a slight variation in frequency of the tones at "non-standard" sampling rates.

### **B CHANNEL**

In order to easily distinguish between the left and right channels of the stereo signal, the B Channel may be toggled and/or phase inverted with respect to the A Channel or may be turned off completely, by operating the CYCLE, INVERT and OFF buttons respectively.

### **SEND INVALID**

Depressing the INVALID pushbutton sets the validity bit to indicate that the data being sent may not be suitable for conversion.

## POWER

The Audio Bit Splitter is powered by four AA Ni-Cad rechargeable batteries or from a 9V, 300 mA AC adapter. The adapter can recharge the batteries and power the unit simultaneously. To replace the batteries, remove the two screws on either side of the housing and carefully slide the assembly from the housing. **NOTE:** USE Ni-Cad AA CELLS ONLY!

The unit will operate for two hours continuously from a full charge and require eighteen hours to recharge from a full discharge. It is recommended that the batteries are fully discharged before charging to improve battery life and efficiency.

## SPECIFICATIONS

### DIGITAL

<b>Digital Input Standard</b>	AES/EBU 110 $\Omega$ transformer balanced on 3 pin XLR connector Level : 200mVpp to max 7Vpp
<b>Digital Output Standard</b>	AES/EBU 110 $\Omega$ transformer balanced on 3 pin XLR connector Level : 5 Vpp 110 $\Omega$ terminated
<b>Jitter (EXT REF)</b>	Less than 5 nsec avg.
<b>(INT REF)</b>	Less than 10 nsec avg.
<b>Sample Frequency</b>	Selectable 48kHz, 44.1kHz, and 32kHz (0.1%) or lock to external reference at 30kHz to 50kHz
<b>Digital Audio</b>	Level :Selectable OFF, -20 dBFs, -12 dBFs or 0 dBFs Tone : Selectable 1kHz or 400Hz THD : Less than 0.0001% Resolution : 24 bit resolution

### ANALOG

<b>Analog Output Standard</b>	Left and right 60 $\Omega$ balanced outputs on 1/4" stereo headphone jacks.
<b>Analog Audio Level</b>	Selectable OFF, -16 dBu, -8 dBu, or 4 dBu +/- 0.1 dBu
<b>Analog Audio Tone</b>	400Hz or 1kHz Selectable +/- 0.01 kHz
<b>Noise</b>	Better than 80 dBu (20Hz to 20kHz)
<b>THD+Noise</b>	Better than 0.05%

<b>Batteries</b>	4xAA size Ni-Cad rechargeable 600 mAh. (More than 2 hours of continuous use) Replace with Ni-Cad AA cells only.
<b>Charge Time</b>	12-18 hours from full discharge.
<b>AC Adaptor</b>	9V DC 500mA DC Adaptor. The adaptor can charge the batteries and supply power to the unit at the same time.

## **WARRANTY**

All Ward-Beck Systems Ltd. products are warranted against defective materials and workmanship for a period of one year from the date of shipment.

Ward-Beck Systems Ltd. will repair or replace, at its option and without charge, all said products or parts thereof which upon factory inspection prove to be defective during the warranty period, provided that:

1. The original serial numbers are intact and have not been tampered with.
2. The purchaser shall return any equipment or parts thereof to Ward-Beck Systems Ltd. only after obtaining prior authorization and shipping instructions from the factory. (Ward-Beck Systems Ltd. reserves the right to inspect or repair equipment on the purchaser's premises).
3. The purchaser assumes the obligation for all expenses in connection with the shipping and return of such goods, once authorization has been obtained.

This warranty does not cover items normally considered expendable, such as fuses and lamps.

This warranty does not cover damages caused by misuse, accident, neglect, unauthorized alteration, repair by unauthorized personnel, or damage caused by an act of God, war, or civil insurrection.

In no event shall Ward-Beck Systems Ltd. be liable for consequential damages. Ward-Beck Systems Ltd. shall have the rights to final determination as to the application of this warranty.

Ward-Beck Systems Ltd. reserves the right, at any time and without notice, to make changes in its equipment, components, specifications or designs, as may be warranted by progress in state-of-the-art technology.

Ward-Beck Systems Ltd. reserves the right to make design changes, additions to, and improvements in its products, without obligation to install such revisions in products previously manufactured.

The warranty set forth herein is in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness.

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