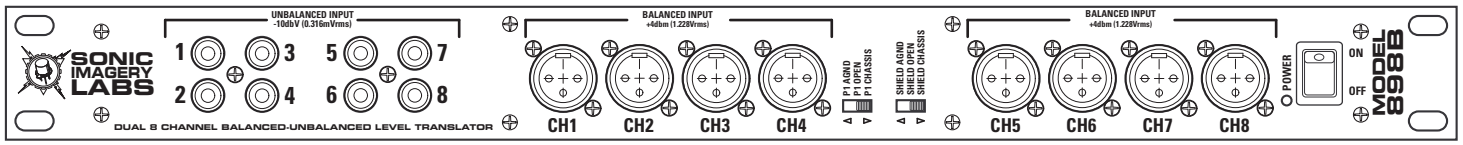
Sonic Imagery Labs

Model 898B - Octal Balanced/Unbalanced Level Translator

Professional Audio Products Datasheet

High Performance Audio Electronics



Model 898B - 8 Channel Balanced 8 Channel Unbalanced Level Translator

General Description

The Sonic Imagery Labs, Model 898B is a high performance professional grade tool used to convert single-ended unbalanced -10 dBV consumer line level analog audio signals to balanced +4 dBm professional line levels - and vice versa. It is the only product available on the market that provides 8 channels in each direction, simultaneously. The 898B does not use transformers and it's active circuitry is specifically designed to be uncolored and reproduce at it's outputs, what is input to a high degree of accuracy.

Unbalanced input connections typically should be kept as short as possible to prevent the undesirable effects of microphonics, hum and noise pickup. The Model 898B allows the conversion to and from balanced lines that can be run up to 500 feet without audible loss of audio quality.

Signal to noise and common mode rejection performance are perfectly preserved by using the 898B. The 898B incorporates precision trimmed components that are fully specified for high performance analog audio frequency applications. It has outstanding AC characteristics, including ultra low harmonic distortion (0.0006% at 1KHz), and the ability to drive capacitive lines and remain stable, high slew rate (15V/uS) and DC to 200Khz bandwidth.

The Sonic Imagery Labs Model 898Bs rugged steel one rack space package and performance provides the answer to the most demanding applications requiring precision level conversion and input - output line balancing and unbalancing.

Features

- **8 Channels of -10dBV to +4dBm Balanced Conversion**
- **8 Channels of +4dBm to -10dBV Unbalanced Conversion**
- **Precision Analog Line Receivers**
- **Precision Balanced Line Drivers**
- **Low Total Harmonic Distortion and Noise**
- **DC to 200Khz Bandwidth (direct coupled)**
- **High Current Output Drive in both directions**
- **+23dBu Maximum Levels**
- **Ability to drive 300Ω Loads**
- **RCA & XLR Interface Connections**
- **Channel to Channel Crosstalk > -110dB**
- **Rugged Steel Enclosure**
- **Hand Assembled and Tested With Care**
- **Made in the USA**

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Sonic Imagery Labs
P.O. Box 20494
Castro Valley, California 94546
P:(510)728-1146 F:(510)727-1492
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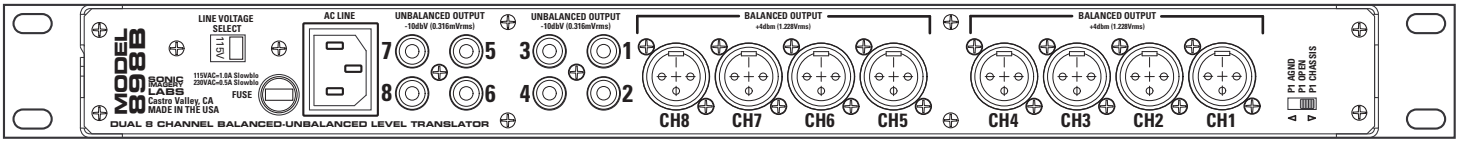


Balanced +4dBm Input Characteristics

The balanced XLR input signals are conditioned by precision high performance differential line receivers that feature ultra low distortion (0.0006% at 1kHz) and noise performance (-107dBu). It offers better than 90dB (at 60Hz) common mode noise rejection (CMNR).

The balanced input Pin1 termination switch located on the 8988B front panel allows the user to connect Pin1 of the eight input XLR3 connectors to chassis ground, open / floating, or to the 898Bs internal analog signal ground.

The 898B allows the user to tie the shell to chassis ground, leave it open/floating or connect to the signals "ground referenced" path for data acquisition, seismological and scientific research applications when required.

Unbalanced -10dBV Input Characteristics

The unbalanced -10dBV input preamp circuitry features excellent analog audio characteristics. THD+Noise is below 0.0005% throughout most of the audio band. The unbalanced input impedance is fixed at 10KΩ to match the drive characteristics of consumer and "pro-sumer" equipment.

Balanced +4dBm Output Characteristics

The balanced outputs of the 898B has the ability to drive 32 volts peak to peak (24dBu) into a 600Ω load across 500 feet (152meter) of cable without audible loss of audio quality. Use of Belden type 8451 or 9452 or similar shielded cable and quality XLR connectors are recommended. The balanced +4dBm XLR3 output is driven by a high performance monolithic differential line drivers offering improved performance over conventional cross-coupled balanced line driver designs.

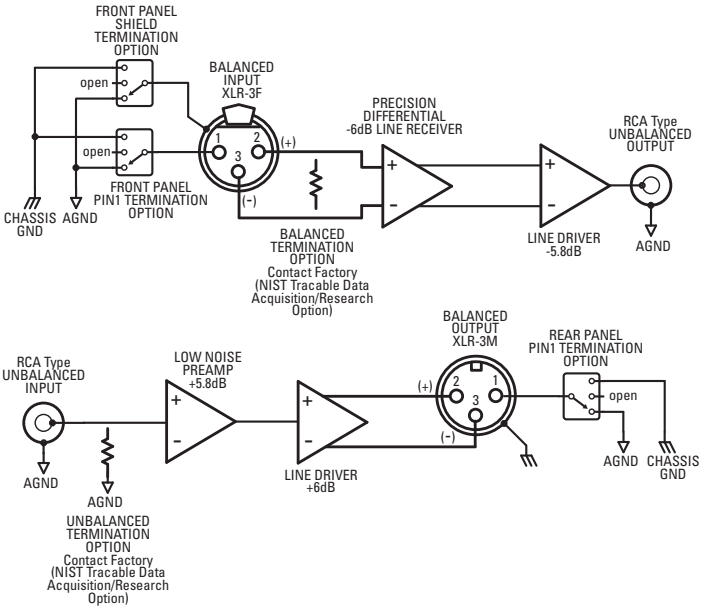
The balanced output Pin1 termination switch located on the 8988B rear panel allows the user to connect Pin1 of the eight output XLR3 connectors to chassis ground, open / floating, or to the 898B's internal line driver ground.

Unbalanced -10dBV Output Characteristics

The unbalanced -10dBV output driver circuitry also features excellent analog audio characteristics. THD+Noise is below 0.0007% throughout most of the audio band. Gold plated high performance RCA phono style input jacks are used throughout. The shield is isolated from chassis ground. The drivers can produce 50mA of drive current allowing loads as low as 600 ohms to be driven.

Block Diagram

The following diagram is a simplified block diagram of the 898B. It should be noted that the analog audio path is DC coupled from input to output. No interstage capacitors are used in the design. This feature allows the 898B to act like a "straight wire." Hence the units bandwidth extends to and is flat to DC. This is important for data acqusition, seismological and scientific research.



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AC Mains Selection

AC Mains power is user selectable via the line voltage select switch located on the rear panel of the 898B. Due to the variety of AC plugs used throughout the world, this unit is shipped **without** an AC power cord when shipped outside of the United States, Mexico or Canada. The 898B is designed to operate at 100Vac-240Vac 50-60Hz

Wiring Interface

The Model 898B's balanced +4dBu inputs and outputs conform to the IEC 268-12 XLR wiring standard of pin 2 hot(+) and pin 3 cold (-). The unbalanced -10 dBV inputs and outputs are gold plated RCA phono type connectors with shields isolated from chassis ground.

Quality

Flexibility and overall construction quality are important elements, and depending on your application requirements may be key factors in your purchasing decision. Take your time and keep in mind your own personal requirements for a system. All Sonic Imagery Labs products are constructed with premium quality components to insure a long life of normal use, and to provide the engineer, technician or musician, the most versatile sound and support possible.

Warranty

Sonic Imagery Labs warrants to the original purchaser of any Sonic Imagery Labs equipment, that the product is in working condition, according to its specifications at the time of shipment, for a period of three (3) years from the date of original manufacture. Should the equipment malfunction during the warranty period, Sonic Imagery Labs will at its discretion repair or replace the equipment upon receipt with an equivalent. Any replaced parts become property of Sonic Imagery Labs. This warranty does not apply to the software component of the product or a product which has been damaged due to accident, misuse, abuse, improper installation, usage not in accordance with product specifications and instructions, natural or personal disaster, or unauthorized alterations, repairs or modifications.

Specifications:

Physical

- Unit Size
  1.75" Height x 19" Wide x 4.8" Deep
  (44.45mm Height x 483mm Wide x 122mm Deep)
- Unit Weight
  4 pounds 9 ounces
  (2.07 kilograms)

Electrical

AC Input Power

- User selectable 100Vac-240Vac 50-60Hz

-10 dBV to +4 dBu (RCA Type to XLR3)
Unbalanced to Balanced Direction

- Nominal input reference level
  -10 dbV(0.316Vrms)
- Nom. input ref. level channel to channel accuracy
  +/-1% (0.08dB)
- Bandwidth
  DC-165Khz +/- 0.2dB
  200KHz -3dB
- THD+Noise@1Khz, Rload 600Ω, 22Hz-20KHz BW
  Vo=10Vrms 0.0006%
- Noise Floor, 22Hz-20KHz BW
  better than -101dBu
- Headroom, THD+Noise <1%, Rload 600Ω,
  22Hz-20KHz BW +22.3dBu (28.5Vpp, 10.1Vrms)
- Output DC Offset, 600Ω Rload
  +/- 4mV typical
- Input Impedance Zin 10KΩ
  OPTION 002 user application defined
- Output Impedance Zout 50Ω

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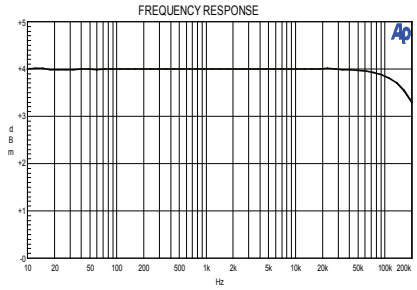
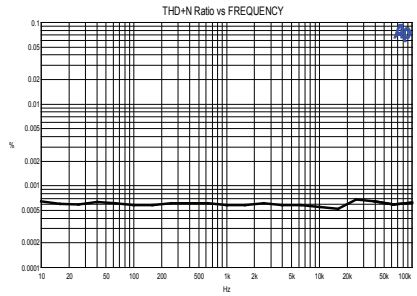
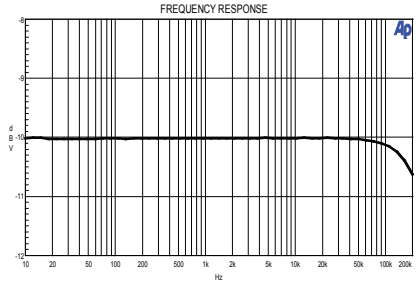
Specifications: (continued)



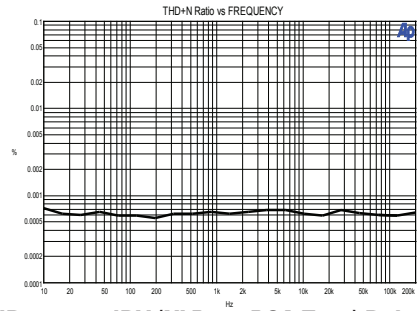
-10 dBV to +4 dBu (RCA Type to XLR3) Unbalanced to Balanced Frequency Response



-10 dBV to +4 dBu (RCA Type to XLR3) Unbalanced to Balanced THD+N vs Frequency



+4 dBu to-10 dBV (XLR3 to RCA Type) Balanced to Unbalanced Frequency Response



+4 dBu to -10 dBV (XLR3 to RCA Type) Balanced to Unbalanced THD+N vs Frequency

+4 dBu to -10 dBV (XLR3 to RCA Type) Balanced to Unbalanced Direction

- Nominal input reference level
  +4 dBu (1.228Vrms)
- Nom. input ref. level channel to channel accuracy
  +/-1% (0.08dB)
- Bandwidth
  DC-165Khz +/- 0.2dB
  200KHz -3dB
- Common Mode Rejection, Vcm+/-
  46.5V, Rs 50Ω better than 90dB at 60Hz
- THD+Noise@1Khz, Rload 600Ω
  Vo=2Vrms 0.0006%
- Noise Floor, 22Hz-20KHz BW
  -107dBu
- Headroom, THD+Noise <1%, RTO
  +22.3dBu (28.5Vpp, 10.1Vrms)
- Output DC Offset, 10KΩ Rload
  +/-1mV typical
- Input Impedance
  24KΩ differential
  18KΩ common mode
  OPTION 001 user application defined
- Output Impedance 100Ω

All specifications subject to change without notice. The information provided herein is believed to be reliable; however; Sonic Imagery Labs assumes no responsibility for inaccuracies or omissions. Sonic Imagery Labs does not warrant or authorize any Sonic Imagery Labs products for use in life support devices and / or systems.

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